UNITED NATIONS
INDUSTRIAL DEVELOPMENT ORGANIZATION

Distr.
LIMITED
UNIDO/IS.408.Add.1
29 September 1983
ENGLISH

THE AGRICULTURAL MACHINERY INDUSTRY: AN APPRAISAL OF THE CURRENT GLOBAL SITUATION PRODUCTION AND MARKET OUTLOOK

STATISTICAL COMPENDIUM

Sectoral Studies Series
No. 5, Volume II

SECTORAL STUDIES BRANCH
DIVISION FOR INDUSTRIAL STUDIES

V.83-62306

Main results of the study work on industrial sectors are presented in the Sectoral Studies Series. In addition a series of Sectoral Working Papers is issued.

This document presents major results of work under the element Studies on the Agricultural Machinery Industry in UNIDO's programme of Industrial Studies 1982/83.

This document has been reproduced without formal editing.

The designations employed and the presentation of material in this document do not imply the expression of any opinion whatsoever on the part of the Secretariat of the United Nations concerning the legal status of any country, territory, city or area of its authorities, or concerning the delimitation of its frontiers or boundaries.

Mention of company names and commercial products does not imply the endorsement of the United Nations Industrial Development Organization (UNIDO).

Preface

This statistical compendium contains the detailed data supporting the Volume 1 of the study entitled "The agricultural machinery industry: An appraisal of the current global situation, production and market outlook", Sectoral Study Series No. 5 (UNIDO/IS.408).

Section A of the statistical compendium contains the statistical tables referred to in chapters 1 and 2 of the study. Section B contains the tables referred to in chapter 3. They comprise mainly individual country as well as company data which were made available by consultants. Section C contains data for individual developing countries collected in the course of the study work. In order to improve this data base, comments and observations are invited on the situation of the agricultural machinery industry and more specifically, on the level of mechanization in the individual countries as described in the last two columns of each table.

STATISTICAL COMPENDIUM

Section A

Tables referring to global appraisal and analysis of production and trade

Table 1 Sales of agricultural machinery in selected major developed market economies 1972-1981

Table 2 Sales of agricultural machinery by product groups in 10 selected market economies in 1979

Table 3 World production of tractors of more than 10 HP 1971-1980

Table 4 Number of tractors assembled and/or manufactured in developing countries 1980

Table 5 Production of ploughs in major manufacturing countries 1971-1980

Table 6 Production of seeders in major manufacturing countries 1971-1980

Table 7 Production of combine harvester-threshers in major manufacturing countries 1971-1980

Table 8 World production of selected agricultural machinery products 1971-1980

Table 9 Exports of agricultural machinery by regions and selected countries 1971-1980

Table 10 Imports of agricultural machinery by regions and selected countries 1971-1980

Table 11 Exports and imports of agricultural machinery by regions and selected countries in 1980

Table 12 Developed market economies: Exports of agricultural machinery in 1980 and 1981

Table 13 Developed market economies: Imports of agricultural machinery in 1980 and 1981

Table 14 Developing countries - major exporters of agricultural machinery in 1980

Table 15 Developing countries - major exporters of agricultural machinery in 1981

Table 16 Developing countries - major importers of agricultural machinery in 1980

Table 17 Developing countries - major importers of agricultural machinery in 1981

Table 18 Structure of world exports of agricultural machinery by major product types in 1971, 1975, and 1980

Table 19 Exports of agricultural machinery by product group and destination 1971, 1975, and 1980

Table 20 Share of major product groups within total agricultural machinery imports by developing regions 1971 and 1980

Table 21 Tractors per agricultural land and per arable land, 1961-65 to 1975

Table 22 Labour force in agriculture (in absolute numbers) and as a percentage of total labour force, 1950 to 2000

Table 23 Average wheat yields, 1948-50 to 1978-80

Table 24 Total capital invested per labour unit in agriculture, 1961 to 1973

Table 25 Commercial energy use in crop and livestock production in developing countries, 1980 and projections for 2000

Table 26 Apparent consumption of agricultural machinery 1980 and projections for 1990-2000.

Table 1. Sales of agricultural machinery in selected major developed market economies 1972 - 1981

(US $ million, constant 1975 prices)

	1972	1975	1979	1980	1981	1982
Austria	183.7	152.0	210.3	..	..	..
Australia	269.5	342.9	249.2	..	..	..
Belgium	342.2	476.9	557.2	..	..	..
Finland	80.9	130.5	112.5	130.6	136.5	..
France	1,185.5	1,679.0	1,512.9	1,424.8	1,249.9	..
Germany, Fed.Rep.	1,556.4	2,184.3	2,569.6	2,250.4	1,861.1	..
Italy	1,055.4	1,528.0	1,638.3	2,054.3	1,545.1	..
Japan	1,242.1	2,365.0	2,189.6[a/]	1,839.2	..	..
Norway	46.9	76.4	59.0	..	..	..
Sweden	270.6	432.4	355.4	218.9	88.9	..
United Kingdom	1,377.2	1,490.0	1,832.2	1,205.9	1,008.2	..
U.S.A.	7,890.9	9,371.6	9,535.9	8,674.0	8,684.6	6,369.7

Source: The Engineering Industries in OECD Member Countries, Basic Statistics, 1972-1975 and 1976-1979, OECD, Paris, 1977 and 19

Comité Européen des Groupements de Constructeurs du Machinisme Agricole (CEMA).

David M. Dornbusch and Co., San Francisco, U.S.A. Data comprise 6 major manufacturers in U.S.A.

a/ 1978.

Table 2. Sales of agricultural machinery by product groups in 10 selected market economies in 1979

(percentage distribution)

	Machinery for cultivating and preparing the soil	Harvesting, threshing and sorting machines	Milking machines and dairy equipment	Tractors	Others	Total per cent
Australia	30	35	1	20	14	100
Austria	10	30	-	60	-	100
Belgium	65	35	-	-	-	100
Denmark	30	50	20	-	-	100
Finland	23	23	5	45	3	100
France	20	22	1	27	30	100
Germany, Fed. Rep.	10	20	5	50	15	100
Norway[a/]	70	25	5	-	-	100
Sweden	10	15	25	50	-	100
USA[b/]	10	30	3	30	27	100
All above countries	15	25	5	40	15	100

Source: The Engineering Industries in OECD Member Countries, Basic Statistics, 1976-1979, OECD, Paris, 1982, and UNIDO estimates

a/ 1978

b/ 1977

Table 3: World production of tractors of more than 10 HP 1971 - 1980
(units)

ISIC-BASED CODE - 382261A

COUNTRY OR AREA	Footnotes	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	Annual average growth 1971-1975
AFRICA		89	7	423	842a/	1605a/	2153a/	2882a/	3767a/	4926a/	4249a/	106.0
Algeria		-	-	389	799	1562	2110	2839	3724	4883	4206	
Angola		89	7	34	...	...	...	...	...	...	...	
AMERICA, NORTH		191311	224442	242774	241364	241950	224728	215774	209461	418439	374953	6.0
Mexico		5079	6229	5830	7539	10082	11574	10489	13005	15595	17893	
United States	1/	186232	218213	236944	233825	231868	213154	205285	196456	400844	357060	
AMERICA, SOUTH		37131a/	46161a/	63288a/	73674	77995	89692a/	79637a/	55786a/	67634a/	70501a/	20.4
Argentina	2/	13268	14408	21460	24505	18397	24098	25631	5997	10901	3618	
Brazil		23548	31438	41513	49075	59061	65279	53691	49474	56418	...	
Peru	3/	...	...	...	94	537	...	...	...	...	...	
ASIA (EXCL. USSR)		211135a/	240547a/	317971a/	379700a/	418108a/	509170a/	467177a/	435345a/	499892a/	447084a/	18.6
Burma	4/	657	594	1019	426	410	882	844	700	...	...	
China		...	...	...	...	...	...	99300	113500	125600	97700	
India		16545	18308	23537	29097	32445	36675	34675	52368	60094	67528	
Iran		3833	4466	7390	7682	12608	13442	10032	6796	...	...	
Iraq		592	2166	1735	1279	2269	...	...	...	...	...	
Japan	5/	64790	82810	142447	206538	235245	309909	288073	227196	266141	227932	
Turkey		15693	23178	32818	25653	26106	36889	31658	31943	32097	...	
EUROPE (EXCL. USSR)		570991	562296a/	600741a/	670720a/	726164a/	777786a/	806356a/	724254a/	709676a/	679985a/	6.2
European Econ. Comm.		413680	396442a/	423335a/	470593a/	512658a/	556575a/	578780a/	501766a/	504327a/	466809a/	5.5
Denmark		6	...	...	...	...	...	...	...	...	...	
France	6/	112800	109300	117900	130400	140500	166700	162300	165000	157200	123500	
Germany, Fed. Rep.		83767	84237	99854	116111	114064	125152	128727	108480	110646	94587	
Italy		65607	68604	86292	104476	116388	128217	140547	116380	115775	127023	
United Kingdom	7/	151500	134295a/	119283	119600	141700	136500	147200	111900	120900	...	
EFTA		21807	22293	24407	25500	25327	25866	25638	22278	20694	24821a/	3.8
Austria		9200	9233	9209	10167	9583	9000	9251	9241	8281	10049	
Finland		2479	3183	4290	3308	3143	2629	3727	3433	3399	...	
Sweden		10128	9877	10908	12027	12601	14237	12660	9604	9014	...	
EASTERN EUROPE		117135	117916	121839	135669	146831	154624	160340	166616	158181	168656	5.5
Bulgaria		4668	4094	3958	4241	5112	5919	6258	7675	5944	6767	
Czechoslovakia		21794	22253	23975	27065	29585	31458	35040	33317	35370	33359	
German Dem. Rep.		15172	8295	3885	4045	4827	4018	...	...	...	...	
Hungary		1611	1175	1063	730	551	513	658	400	142	108	
Poland		43510	47216	50156	55038	57553	58805	59078	59509	54231	57549	
Romania	8/	30400	34883	38800	44550	50003	53911	59306	65715	62494	70873	
OTHER EUROPE		18349	25645	31160	38958	41348	40721	41598	33594	26274	19699a/	22.5
Greece		370	695	1135	2832	2728	1689	1879	1571	-	...	
Spain		17450	24382	29650	35786	38258	38830	39594	31709	25954	18012	
Yugoslavia		529	568	375	340	362	202	125	314	320	129	
USSR		472013	477822	499582	531094	550432	562175	569145	576113	557415	554916	3.9
USSR		472013	477822	499582	531094	550432	562175	569145	576113	557415	554916	
Bielorussian SSR		(81050)	(81790)	(82950)	(84085)	(85861)	(86526)	(87126)	(87835)	(89145)	(89550)	
Ukrainian SSR		(149192)	(125485)	(126894)	(136551)	(143059)	(140794)	(141331)	(141752)	(142039)	(135630)	
OCEANIA		8468a/	7637	8273a/	8388a/	8296a/	8837a/	8637a/	7792a/	6308a/	6932a/	- 8.5
Australia	9/	...	5536	6312	6427	6335	6876	6676	5831	4547	4971	
New Zealand	8/ 9/ 10	1822	2101	...	...	...	...	...	...	...	...	
TOTAL		1491138	1558912	1733052	1905782	2024550	2174541	2149608	2012518	2262490	2138620	

3822-6 1A Tractors of 10 HP and over, other than industrial and road tractors.

Vehicles constructed essentially for hauling or pushing another vehicle, appliance or load, whether or not they contain subsidiary provision for the transport, in connexion with the main use of the tractor, of tools, seeds, fertilizers or other goods, etc, irrespective of their mode of propulsion (internal combustion engine, steam engine, etc.). This heading includes agricultural as well as other tractors, for example for use in forestry or in construction. Road tractors for tractor-trailer combinations and industrial tractors are, however, excluded. Walking tractors, equipped with a single driving axle carried on one or two wheels, the steering of which is effected by means of two handles, used like normal tractors and possibly with interchangeable implements, are also included.

1/ Shipments. 2/ Agricultural tractors only. 3/ Data refer to assembly. 4/ Twelve months ending 30 September of year stated.
5/ Including bulldozers. 6/ Agricultural tractors of all sizes. 7/ Deliveries of wheeled and half-track tractors.
8/ Including road tractors. 9/ Including tractors of less than 10 HP. 10/ Twelve months beginning 1 April of year stated.

Source: Yearbook of Industrial Statistics, Vol. II, 1980 Edition. United Nations, New York, 1982. Data shown include those reported to the UNSO as well as estimates by the UNSO.

a/ estimate.

Table 4. Number of tractors assembled and/or manufactured in developing countries, 1980

	India	Brazil	Mexico	Turkey	Pakistan	Argentina	Algeria	Iran	Syria	Thailand
Massey Ferguson	7,800	18,800	5,600	2,800	5,500	1,250	-	3,000	-	600
Intern. Harvester	11,600	-	2,700	1,200	1,000	-	-	-	-	-
Ford	3,500	13,500	5,600	900	-	-	-	-	-	600
J. Deere	-	-	2,000	-	-	1,000	-	-	-	-
Fiat	-	-	-	4,200	-	400	-	-	-	-
Deutz	1,000	-	-	-	-	1,200	3,800	-	-	-
D. Brown/Case	-	500	-	-	-	-	-	-	-	-
Valmet	-	14,300	-	-	-	-	-	-	-	-
Eicher	10,600	-	-	-	-	-	-	-	-	-
C.B.I.	-	7,150	-	-	-	-	-	-	-	-
Ebro	-	-	-	-	-	-	-	-	1,700	-
Leyland	-	-	-	1,650	-	-	-	-	-	-
Others	32,700	4,650	-	-	-	-	-	-	-	-
Total	67,200	58,900	15,900	10,750	6,500	3,850	3,800	3,000	1,700	1,200

Source: Louis Berger, S.A.R.L., Paris, France.

Table 5. Production of ploughs in major manufacturing countries 1971-1980
(Percentage distribution of units produced)

Country/year	1971	1975	1980
USA	8.8	15.5	20.6[a/]
USSR	25.6	19.1	18.1
France	14.1	15.5	13.4
Brazil	15.1[a/]	12.1	11.6
Yugoslavia	3.3	4.4	5.6
Japan	5.7	4.7[a/]	5.4[a/]
Poland	8.3	7.6	4.1
Germany, FR	2.8	2.4	1.5
Other countries (estimate)	16.3	18.7	19.7
Total world (estimate)	100.0	100.0	100.0

Source: Yearbook of Industrial Statistics, Vol.II, 1980 Edition, United Nations, New York, 1982.

Note: Countries ranked in descending order according to 1980 data.

a/ UNIDO estimates.

Table 6. Production of seeders in major manufacturing countries 1971-1980

(Percentage distribution of units produced)

Country/year	1971	1975	1980
USA	11.8	20.1	30.8
USSR	19.7	17.9	19.7
Germany, FR	12.9	8.5	6.7
France	9.0	6.8	5.8
Brazil	4.8[a/]	3.4[a/]	3.3[a/]
Bulgaria	3.5	2.4	2.0
Poland	6.4	4.3	2.0
Romania	2.0	2.5	1.9
Other countries (estimate)	29.9	34.1	27.8
Total world (estimate)	100.0	100.0	100.0

Source: Yearbook of Industrial Statistics, Vol.II, 1980 Edition, United Nations, New York, 1982.

Note: Countries ranked in descending order according to 1980 data.

a/ UNIDO estimates.

Table 7. Production of combine harvester-threshers in major manufacturing countries 1971-1980
(Percentage distribution of units produced)

Country/year	1971	1975	1980
USSR	51.9	32.1	40.3
Japan	19.4	41.9	36.2
USA	10.8	10.3	9.8
Germany, FR	6.1	5.3	4.3
Other countries (estimate)	11.8	10.4	9.4
Total world (estimate)	100.0	100.0	100.0

Source: Yearbook of Industrial Statistics, Vol.II, 1980 Edition, United Nations, New York, 1982.

Note 1: Countries ranked in descending order according to 1980 data.

Table 8. World production of selected agricultural machinery products, 1971 - 1980
(Numbers of units built)

Products \ Years	1971	1975	Annual average growth rate (%) 1971-1975	1980	Annual average growth rate (%) 1975-1980
Tractors of 10 HP and over	1,491,138	2,024,550	7.9	2,138,620	1.1
Tractors of less than 10 HP (garden tractors)	811,576	706,428	-3.4	787,433	2.2
Cultivators, scarifiers, hoes, weeders, etc.	712,957	920,265	6.6	851,755	-1.5
Combine harvester-threshers	196,990	303,580	11.4	291,443	-0.8
Harrows, rotary, animal or tractor operated	386,184	834,641	21.2	1,051,492	4.7
Ploughs	861,408	1,072,894	5.6	1,117,588	0.8
Rakes, animal or tractor operated and self-propelled	149,028	166,335	2.8	172,608	0.7
Seeders, planters and transplanters	711,857	1,004,726	9.0	1,018,686	0.3
Threshing machines[a/]	207,925	192,611	-1.9	148,028	-5.1
Fertilizer distributors	215,926	198,742	-2.0	191,954	-0.7

Source: Yearbook of Industrial Statistics, Vol. II, 1980 Edition, United Nations, New York, 1982.

a/ No figures reported for North America.

Table 9. Exports of agricultural machinery by regions and selected countries, 1971 - 1980
(US$ million, constant 1975 prices)

Regions	1971	1975	1980	Percentage distribution 1971	1975	1980
Developed market economies	3,359	6,807	7,018	79.1	80.8	77.2
of which:						
-- USA	962	2,066	1,927	22.7	24.5	21.2
-- Germany, FR	477	1,032	1,135	11.2	12.2	12.5
-- United Kingdom	685	876	873	16.1	10.4	9.6
-- Italy	197	481	678	4.6	5.7	7.5
-- Japan	138	521	531	3.2	6.2	5.8
Centrally planned economies	862	1,517	1,902	20.3	18.0	20.9
of which:						
-- USSR	261	569	771	6.1	6.7	8.5
-- Germany, DR	262	379	473	6.2	4.5	5.2
-- Czechoslovakia	125	166	237	2.9	2.0	2.6
Developing economies	23	103	173	0.5	1.2	1.9
-- Latin America	15	82	146	0.3	1.0	1.6
-- Asia	5	12	27	0.1	0.1	0.3
-- Africa	3	9	0.6	0.1	0.1	-
World	4,244	8,427	9,093	100.0	100.0	100.0

Source: UNSO Trade Tapes, ECE Bulletin of Statistics on World Trade in Engineering Products 1971, 1975 and 1980, United Nations 1973, 1977 and 1982.

Table 10. Imports of agricultural machinery by regions and selected countries 1971 - 1980
(US$ million, constant 1975 prices)

Regions	1971	1975	1980	Percentage distribution 1971	1975	1980
Developed market economies	2,487	4,591	5,225	58.6	54.5	57.5
of which:						
-- USA	379	708	746	8.9	8.4	8.2
-- Germany, FR	143	261	311	3.4	3.1	3.4
-- United Kingdom	84	187	277	2.0	2.2	3.0
-- Italy	98	122	189	2.3	1.4	2.1
-- Japan	59	78	91	1.4	0.9	1.0
Centrally planned economies	757	1,437	1,589	17.8	17.0	17.5
of which:						
-- USSR	300	498	406	7.1	5.9	4.5
-- Germany, DR	56	132	147	1.3	1.6	1.6
-- Czechoslovakia	177	248	143	4.2	2.9	1.6
Developing economies	1,000	2,399	2,280	23.6	28.5	25.1
-- Latin America	393	916	856	9.3	10.9	9.4
-- Asia	364	953	822	8.6	11.3	10.1
-- Africa	243	530	501	5.7	6.3	5.5
World	4,244	8,427	9,093	100.0	100.0	100.0

Source: UNSO Trade Tapes, ECE Bulletin of Statistics on World Trade in Engineering Products 1971, 1975 and 1980, United Nations 1973, 1977 and 1982.

Table 11. Exports and imports of agricultural machinery by regions and selected countries in 1980
(US$ millions, constant 1975 prices and per cent)

Region/Country	Exports		Imports		Export/import ratio
	mill US$	% of total world	mill US$	% of total world	
Developed market economies	7,018	77.2	5,225	57.4	1.34
of which:					
- USA	1,927	21.2	225	8.2	2.58
- Germany, F.R.	1,135	12.5	746	3.4	3.65
- United Kingdom	873	9.6	311	3.0	3.16
- Italy	678	7.5	277	2.1	3.58
- Japan	531	5.8	189	1.0	5.83
EEC	3,626	39.9	91	21.4	1.86
Centrally planned economies	1,902	20.9	1,947	17.5	1.20
of which:					
- USSR	771	8.5	1,589	4.5	1.90
- GDR	473	5.2	406	1.6	3.22
- Czechoslovakia	237	2.6	147	1.6	1.65
Developing economies	173	1.9	2,280	25.1	0.08
of which:					
- Latin America	146	1.6	856	9.4	0.17
- Asia and Oceania	27	0.3	922	10.2	0.03
- Africa	0.6	- a/	501	5.5	0.001
World	9,093	100.0	9,093	100.0	1.00

Source: UNSO Trade Tapes, ECE Bulletin of Statistics on World Trade in Engineering Products 1980, United Nations, 1982.

Note 1: For reporting reasons the imports of the listed developed market economies do not include imports from the centrally planned economies. However, such imports are not large in magnitude.

Note 2: The table comprises SITC (Rev. 1) 712.1, 712.2, 712.5 and 712.9.

a/ negligible

Table 12. Developed market economies: exports of agricultural machinery in 1980 and 1981
(US$ million, constant 1975 prices)

Regions/countries	1980	1981	percentage change 1980-1981
Developed market economies	7,018.3	6,665.7	- 5.0
of which 11 major exporters			
- USA	1,926.7	2,144.8	+ 11.3
- Germany, FR	1,135.0	996.6	- 12.2
- United Kingdom	873.4	698.1	- 20.0
- Italy	678.8	5,988.8	- 11.8
- Japan	530.8	623.2	- 17.4
- France	384.0	349.4	- 9.0
- Canada	360.3	315.7	- 12.4
- Belgium - Luxembourg	267.0	196.7	- 26.3
- Netherlands	158.1	144.1	- 8.9
- Denmark	116.5	97.5	- 16.3
- Sweden	103.8	81.5	- 15.7
EEC	3,626.0	3,093.1	- 14.7

Source: UNSO Trade Tapes, OECD microtables

Note: Countries are ranked in descending order according to 1980 data.
The data do no include trade with the centrally planned economies.

Table 13. Developed market economies: imports of agricultural machinery in 1980 and 1981
(US$ million, constant 1975 prices)

Regions/countries	1980	1981	percentage change 1980-1981
Developed market economies	4,993.7	4,022.2	- 19.5
of which 11 major exporters			
- Canada	804.4	871.7	-18.4
- USA	746.2	603.9	-19.1
- France	609.2	510.9	-16.1
- Germany, FR	311.1	262.7	-15.6
- Australia	279.2	251.0	-10.1
- United Kingdom	276.3	232.5	-15.9
- South Africa	247.4	198.1	-19.9
- Italy	189.3	117.4	-38.0
- Netherlands	158.1	102.0	-35.5
- Belgium - Luxembourg	150.8	100.1	-33.6
- Sweden	140.9	97.3	-30.9
EEC	1,933.1	1,404.9	-27.3

Source: UNSO Trade Tapes, ECE Bulletin of Statistics on World Trade in Engineering Products 1980, United Nations, 1982.

Note: Countries are ranked in descending order according to 1980 data. The data do not include trade with the centrally planned economies.

Table 14. Developing countries - major exporters of agricultural machinery in 1980
(US$ million, constant 1975 prices)

Exporters \ Destination of exports	Developed market economies		Developing countries		Total exports	
	$	%	$	%	$	%
Latin America						
Argentina	5.3	46.1	6.2	53.9	11.5	100
Brazil	24.0	18.9	103.3	81.1	127.3	100
Colombia	-	-	2.2	100.0	2.2	100
El Salvador	0.02	-	1.5	100.0	1.5	100
Mexico	...	...	...	...	6.8	100
Asia						
India (1979)	0.4	16.7	2.0	83.3	2.4	100
Republic of Korea	0.7	24.1	2.2	75.9	2.9	100
Philippines	1.0	83.3	0.2	16.7	1.2	100
Saudi Arabia	0.3	6.0	4.7	94.0	5.0	100
Singapore	0.3	4.9	5.8	95.1	6.1	100
Turkey	0.3	18.7	1.3	81.3	1.6	100
Africa						
Ivory Coast (1979)	0.1	12.5	0.7	87.5	0.8	100
Senegal	0.01	- a/	0.3	100.0	0.3	100
United Republic of Cameroon	0.1	100.0	-	-	0.1	100
Total of selected countries	32.5 b/	20.0	130.4 b/	80.0	169.7	100

Source: UNSO Trade Tapes.

a/ insignificant
b/ excluding Mexico

Table 15. Developing countries - major exporters of agricultural machinery in 1981
(US$ million, constant 1975 prices)

Destination of exports / Exporters	Developed market economies		Developing countries		Total exports	
	$	%	$	%	$	%
Latin America						
Brazil	25.4	17.8	117.4	82.2	142.8	100.0
Colombia	-	-	2.7	100.0	2.7	100.0
Asia						
Saudi Arabia	0.2	7.1	2.6	92.9	2.7	100.0
Singapore	0.3	8.9	3.1	91.0	3.4	100.0
Thailand	-	-	0.6	100.0	0.6	100.0
Turkey	0.2	2.7	6.7	97.3	6.9	100.0
Africa						
Ivory Coast	0.4	33.3	0.8	66.7	1.2	100.0
Senegal	0.01	- a/	0.3	100.0	0.3	100.0
Total selected countries	26.5	16.5	134.2	83.5	160.7	100.0

Source: UNSO Trade Tapes.

Note: a/ insignificant.

Table 16. Developing countries - major importers of agricultural machinery in 1980
(US$ million, constant 1975 prices)

Origin of imports / Importers	Developed market economies		Centrally planned economies		Developing countries		Total imports	
	$	%	$	%	$	%	$	%
Latin America								
Argentina	53.5	74.1	0.1	0.2	18.6	25.7	72.2	100
Brazil	23.3	94.7	1.1	4.5	0.2	0.8	24.6	100
Colombia	28.9	78.5	0.6	1.6	7.3	19.8	36.8	100
Cuba	11.1	10.2	97.3	89.8	0.01	-	108.4	100
Mexico	291.9	99.3	0.4	0.1	1.6	0.6	293.9	100
Venezuela	59.4	88.0	0.1	0.1	8.0	11.9	67.5	100
Asia								
China	15.6	49.2	16.1	50.8	0.03	-	31.7	100
India	22.1	90.6	1.7	8.0	0.6	2.5	24.4	100
Iraq	155.3	91.5	12.5	8.4	1.9	1.1	169.7	100
Republic of Korea	19.0	98.4	0.3	1.6	0.002	-	19.3	100
Pakistan	50.4	76.9	15.1	23.1	0.03	-	65.5	100
Philippines	22.7	99.6	-	-	0.1	0.4	22.8	100
Saudi Arabia	116.5	96.6	-	-	4.1	3.4	120.6	100
Singapore	45.2	98.7	-	-	0.6	1.3	45.8	100
Thailand	40.3	96.9	0.8	1.9	0.5	1.2	41.6	100
Turkey	19.5	99.5	0.1	0.5	-	-	19.6	100
Africa								
Algeria	75.8	91.1	5.2	6.2	2.2	2.6	83.2	100
Egypt	28.6	75.1	9.3	24.4	0.2	0.5	38.1	100
Kenya	16.7	99.4	-	-	0.1	0.6	16.8	100
Libya Arab. Jam.	49.3	100.0	-	-	0.02	-	49.3	100
Morocco	21.8	99.1	0.2	0.9	-	-	22.0	100
Nigeria	72.8	98.0	-	-	1.5	2.0	74.3	100
Tunisia	33.2	99.1	0.3	0.9	0.002	-	33.5	100
Total of selected countries	1,272.9	85.9	161.2	10.9	47.6	3.2	1,481.8	100

Source: UNSO Trade Tapes, UN Bulletin of Statistics on World Trade in Engineering Products, 1980, United Nations 1982.

Table 17. Developing countries - major importers of agricultural machinery in 1981
(US$ million, constant 1975 prices)

Importers	Origin of imports: Developed market economies $	Developed market economies %	Developing countries $	Developing countries %	Total exports $	Total exports %
Latin America:						
Argentina	28.5	86.1	4.6	14.0	33.1	100
Brazil	9.6	100.0	-	-	9.6	100
Colombia	29.1	81.5	6.6	18.5	35.7	100
Cuba	9.0	100.0	-	-	9.0	100
Mexico	271.4	98.5	4.1	1.5	275.5	100
Venezuela	76.2	87.8	10.6	12.2	86.8	100
Asia:						
China	4.7	94.0	0.3	6.0	5.0	100
India	11.5	99.3	0.06	0.7	11.6	100
Iraq	166.3	97.1	4.9	2.9	171.2	100
Republic of Korea	23.8	99.7	0.06	0.3	23.9	100
Pakistan	29.9	94.6	1.7	5.4	31.6	100
Philippines	14.7	97.4	0.4	2.6	15.1	100
Saudi Arabia	179.9	99.5	1.0	0.6	180.9	100
Singapore	18.9	99.5	0.1	0.5	19.0	100
Thailand	22.8	72.6	8.6	27.4	31.4	100
Turkey	35.1	100.0	-	-	35.1	100
Africa:						
Algeria	71.0	90.2	7.7	9.8	78.7	100
Egypt	65.7	98.6	0.9	1.4	66.6	100
Kenya	8.9	92.7	0.7	7.3	9.6	100
Libyan Arab. Jam.	96.4	99.8	0.2	0.2	96.6	100
Morocco	16.8	96.6	0.6	3.4	17.4	100
Nigeria	103.0	94.8	5.7	5.2	108.7	100
Tunisia	30.9	100.0	-	-	30.8	100
Total of selected countries	1,324.0	95.7	58.8	4.3	1,382.8	100

Source: UNSO Trade Tapes, UN Bulletin of Statistics on World Trade in Engineering Products, 1980, United Nations 1982.

Table 18. Structure of world exports of agricultural machinery by major product types in 1971, 1975, and 1980

(US$ million at constant 1975 prices and percentage distribution)

Years	1971		1975		1980	
Product types	$	%	$	%	$	%
Total agricultural machinery[a/]	4,244	100.0	8,427	100.0	9,093	100.0
of which						
Machinery for cultivating soil and harvesting[b/]	1,570	37.0	3,450	41.0	3,637	40.0
Tractors[c/]	2,131	50.0	4,404	52.0	4,723	52.0
Others[d/]	543	13.0	573	7.0	733	8.0

Source: UNSO Trade Tapes, ECE Bulletin of Statistics on World Trade in Engineering Products 1971, 1975 and 1980, United Nations 1973, 1977 and 1982.

a/ SITC's 712.1, 712.2, 712.5 & 712.9 Rev.I
b/ SITC 712.1 and 712.2 Rev.I.
c/ SITC 712.5 Rev.I.
d/ SITC 712.9 Rev.I.

Table 19. Exports of agricultural machinery by product group and destination, 1971 - 1975 - 1980
(percentage distribution)

Destination \ Product group	Agricultural machinery Total a/			Agricultural machinery for cultivating soil b/			Tractors c/		
	1971	1975	1980	1971	1975	1980	1971	1975	1980
Developed market economies	58	55	57	67	59	59	58	53	59
of which:									
- USA	8	8	8	15	12	10	5	6	7
- Germany, F.R.	3	3	3	4	4	4	3	3	2
- United Kingdom	2	2	3	4	4	4	1	1	2
- Italy	2	1	2	3	2	2	2	1	2
- Japan	1	1	1	1	1	1	2	1	1
Centrally planned economies	17	17	18	21	24	23	11	8	10
of which:									
- USSR	7	6	5	6	5	10	2	3	1
- Germany, DR	1	2	2	1	2	0.1	2	1	2
- Czechoslovakia	4	3	2	5	4	2	3	1	2
Developing economies	25	28	25	12	17	18	31	39	31
of which:									
- Latin America	10	11	9	7	9	7	13	14	11
- Asia and Oceania	9	11	10	2	4	6	11	17	12
- Africa	6	6	6	3	4	4	7	8	8
World	100	100	100	100	100	100	100	100	100

Source: UNSO Trade Tapes, ECE Bulletin of Statistics on World Trade in Engineering Products 1971, 1975 and 1980, United Nations 1973, 1977 and 1982.

a/ SITC 712.1, 2, 5, 9, Rev. 1.

b/ SITC 712.2 and 712.2 Rev. 1.

c/ SITC 712.5 Rev. 1.

Table 20. Share of major product groups within total agricultural machinery imports by developing regions 1971 and 1980
(percentage distribution)

1971

Regions \ Products	Total agricultural machinery (712.1,2,5+9)	Machinery for cultivating soil and harvesting (712.1,2)	Tractors (712.5)	Others (712.9)
Latin America	100.0	26.7	69.6	3.7
Asia	100.0	10.8	66.7	22.5
Africa	100.0	19.6	58.8	21.6
Total developing countries	100.0	19.2	65.9	14.9

1980

Regions \ Products	Total agricultural machinery (712.1,2,5+9)	Machinery for cultivating soil and harvesting (712.1,2)	Tractors (712.5)	Others (712.9)
Latin America	100.0	31.6	62.7	5.7
Asia	100.0	25.9	60.3	13.8
Africa	100.0	26.3	71.3	2.4
Total developing countries	100.0	28.1	63.7	8.2

Source: UNSO Trade Tapes, ECE Bulletin of Statistics on World Trade in Engineering Products 1971 and 1980, United Nations 1973 and 1982.

Note: Code numbers in table heading refer to SITC (Rev. 1).

Table 21. Tractors per agricultural land and per arable land 1961-1965, 1969-1971, 1980
(Units per 1,000 hectares, annual average)

	Tractors per agricultural land			Tractors per arable land		
	1961-65	1969-71	1980	1961-65	1969-71	1980
Developed market economies	7.6	9.3	11.4	26.6	31.6	38.3
North America	10.5	11.4	11.0	24.1	24.6	23.4
West Europe	21.6	31.1	43.8	41.7	61.9	87.9
Oceania	0.8	0.8	0.8	10.8	10.2	9.5
Other developed market economies	1.5	4.4	12.9	9.0	25.6	74.9
Developing countries	0.3	0.6	1.1	1.3	2.1	3.8
Africa	0.1	0.2	0.3	o.6	1.2	1.6
Latin America	0.7	0.9	1.3	4.8	5.2	6.5
Near East	0.4	0.5	1.6	1.4	2.4	7.6
Far East	0.2	0.6	1.9	0.3	0.8	2.3
Other developing	1.6	2.4	3.1	6.1	10.6	13.4
Centrally planned economies	1.8	2.5	0.8	5.0	7.5	2.3
Asian CPE	0.2	0.4	0.1	0.7	1.5	0.3
Europe USSR	2.1	4.1	1.3	7.0	10.0	3.2

Source: 1976 FAO Production Yearbook, FAO, Rome 1977.
1980 FAO Production Yearbook, FAO, Rome 1981.

Table 22: Labour force in agriculture (in absolute numbers) and as a percentage of total labour force, 1950 to 2000
(millions and per cent)

Year	Western Europe		Eastern Europe including USSR	
	millions	%	millions	%
1950	42,096	31.1	76,842	54.8
1960	33,146	23.5	67,616	42.4
1970	22,626	15.4	49,362	28.7
1975	19,393	12.7	44,026	23.9
1980	16,445	10.4	38,622	19.8
1985	13,955	8.4	33,720	16.7
1990	11,608	6.8	28,589	13.8
1995	9,617	5.5	24,226	11.5
2000	7,982	4.5	20,999	9.6

Source: UN/ECE; Present and Foreseeable trends in mechanization of agriculture (horizon 1990), FAO/ECE/AGRI/WP.2/46, New York 1981, p. 14. From Economic Bulletin for Europe Vol. 35, No. 2.

Table 23: Average Wheat Yields, 1948-50 to 1978-80
(kg per hectare)

Country	1948-50	1958-60	1968-70	1978-80
Austria	1,577	2,145	3,227	3,930
Belgium	3,143	3,710	3,972	4,999
Denmark	3,587	3,850	4,554	5,039
Finland	1,613	1,670	2,280	2,351
France	1,830	2,340	3,566	4,993
Germany, FR	2,470	3,105	4,013	4,810
Ireland	2,243	2,655	4,325	4,994
Netherlands	3,530	3,860	4,442	6,236
Norway	2,190	2,125	3,104	4,133
Sweden	2,223	1,590	3,605	4,292
Switzerland	2,647	2,137	3,578	4,591
United Kingdom	2,687	3,350	3,926	5,456
Greece	997	1,565	1,662	2,707
Italy	1,490	1,925	2,290	2,659
Portugal	657	870	976	949
Spain	800	1,050	1,217	1,842
Yugoslavia	1,220	1,585	2,218	3,149
Bulgaria	...	1,680	2,621	3,729
Czechoslovakia	1,840	2,055	3,068	4,008
German Democratic Republic	1,897	3,125	3,761	4,450
Hungary	1,280	1,480	2,456	4,104
Poland	1,213	1,655	2,455	2,851
Romania	...	1,160	1,753	2,606
USSR	...	1,125	1,425	1,694

Source: FAO Production Yearbook, various years: from Economic Bulletin for Europe, Vol. 35, No. 2.

Table 24. Total capital invested per labour unit in agriculture, 1961 to 1973
(000 US$)

	1961	1964	1967	1970	1973
Austria	...	7	10	20	30
Belgium	26	37	...	60	81
Denmark	16	23	33	41	75
Finland	5	7	7	10	14
France	...	...	...	26	41
Germany, F.R. of	...	12	16	21	26
Iceland	...	...	...	16	32
Norway	5	6	7	8	12
Sweden	8	10	16	29	37
Switzerland	8	10	10	15	21
United Kingdom	...	...	...	27	62
Greece	0.5	1	1	2	5
Spain	...	...	5	11	17
Yugoslavia	0.5	1	1	1	3
Czechoslovakia (000 Kcs)	56	70	94	112	146
Hungary (000 Forints)	46	63	56	88	193
Poland (000 Zlotys)	141	153	119	136	155

Source: Economic Bulletin for Europe, vol. 35, No. 2, p. 171

Note: Labour units in Western European countries are man-years; in Czechoslovakia, Hungary and Poland the number of persons employed in agriculture. The main purpose of this table is to show the increasing investments per labour unit overtime. Comparisons between countries are impossible owing to different coverage of data (e.g. incl. or excl. land values) and also to different valuations used (e.g. market or taxation values).

Table 25: Commercial energy use in crop and livestock production in developing countries 1980 and projections for 2000

	Total (mill.tons oil equivalent)		Share of cost of each input (per cent)							
			Fertilizers		Farm machinery		Irrigation		Pesticides	
	1980	2000	1980	2000	1980	2000	1980	2000	1980	2000
Africa	1.9	12.1	36	44	48	50	7	2	9	4
Far East	16.4	93.1	63	69	15	25	19	5	3	1
Latin America	12.4	48.7	48	39	45	58	4	1	3	2
Near East	6.1	20.6	43	49	36	41	19	8	2	2
Developing countries a/	36.8	174.5	54	57	31	37	12	4	3	2

a/ 90 countries accounting for 97% of population of developing world outside China.

Source: Energy in agriculture and rural development, FAO, c81/25, August 1981.
Based on data from revised normative high scenario of FAO's study of Agriculture: Toward 2000

Table 26. Apparent consumption of agricultural machinery 1980 and projections 1990 and 2000

Region	Year	Full econometric model		Linear trend extrapolation	
		US$ million[a/]	Annual growth rate %	US$ million[a/]	Annual growth rate %
Latin America[b/]	1980	559		559	
			8.5		9.8
	1990	1,265		1,521	
			3.9		2.9
	2000	1,862		2,028	
North America	1980	7,684		7,684	
			3.6		2.0
	1990	10,913		9,346	
			2.0		0.8
	2000	13,306		10,157	
Other developed market economies	1980	619		619	
			-0.2		4.9
	1990	608		1,000	
			3.2		2.9
	2000	836		1,333	
West Europe (North)	1980	7,038		7,038	
			-4.2		3.7
	1990	4,580		10,113	
			0.03		2.1
	2000	4,696		12,470	
West Europe (South)	1980	503		503	
			7.4		4.7
	1990	1,030		800	
			6.8		2.9
	2000	1,991		1,067	

Note: Data and details of the estimated model will be separately issued by UNIDO.

a/ at constant 1975 prices.
b/ represented by Mexico and Brazil.

STATISTICAL COMPENDIUM

Section B

Tables referring to regional surveys

Table 27 Six major North American agricultural machinery producers' sales and income

Table 28 U.S. agricultural machinery producers shipments and employment

Table 29 U.S. imports of agricultural machinery with detail on tractors by size

Table 30 U.S. exports of agricultural machinery with detail on tractors by size

Table 31 U.S. shipments of agricultural machinery except tractors by product groups

Table 32 U.S. imports and exports of agricultural machinery except tractors

Table 33 Sales of major O.E.C.D. manufacturers of agricultural machinery in 1981

Table 34 Employment in the agricultural machinery industry in selected Western European Countries

Table 35 Production of tractors in the Federal Republic of Germany, 1981-82

Table 36 Agricultural machinery production in the Federal Republic of Germany, 1978-1981

Table 37 Agricultural machinery production in France, 1978-82

Table 38 Sales of agricultural machinery (excluding tractors) and number of enterprises in the U.K., 1979-1980

Table 39 Agricultural machinery production in the Netherlands, 1978-1981

Table 40 Agricultural machinery and implements production in European centrally planned economies, 1970 and 1975 - 1980

Table 41 European centrally planned economies: Trade in agricultural machinery by country

Table 42 European centrally planned economies: Cultivated land per tractor, 1970, 1975 and 1977

Table 43 European centrally planned economies: Crop area per complete harvester or harvester thresher, 1970, 1975 and 1977

Table 44 European centrally planned economies: Production of tractors per 10,000 inhabitants, 1970 - 1980

Table 45 Specific agricultural machinery and equipment produced in centrally planned economies

Table 46 Production of agricultural machinery and implements in Latin America, various years

Table 47 Latin America: Production of agricultural tractors of more than 10 horsepowers, 1970-1982

Table 48 Latin American imports and exports of agricultural machinery and implements - Share of the region in world trade 1971 and 1975-1981

Table 49 ECWA Region: Tractors in use

Table 50 Syria: Agricultural machinery used in cultivation

Table 51 Developing Africa's imports of agricultural machinery 1973-1979

Table 52 Developing Africa's imports of agricultural machinery by subregions, 1973 to 1979

Table 53 Africa's sources of imported agricultural machinery, 1979

Table 54 Africa's tractors imports, 1976-1979

Table 27. Six major North American agricultural machinery producers sales and income (US$ million)

Company / Year	1977	1978	1979	1980	1981	1982
Allis-Chalmers						
- Sales in current dollars (a)	545	580	679	684	700	...
- Sales in constant 1982 dollars	856	846	910	820	732	...
- Profit in current dollars	40	33	38	4	-85	...
- Profit in 1982 dollars	63	48	51	5	-89	...
J.I. Case						
- Sales in current dollars	...	1,386	1,674	1,671	1,798	1,458
- Sales in constant 1982 dollars	...	2,022	2,242	2,004	1,880	1,458
- Profit in current dollars	...	41	37	0	19	-3
- Profit in 1982 dollars	...	60	50	0	20	-3
John Deere						
- Sales in constant dollars (b)	2,933	3,297	3,936	4,489	4,665	4,033
- Sales in constant 1982 dollars	4,608	4,810	5,272	5,384	4,878	4,033
- Profit in current dollars	256	265	311	228	251	53
- Profit in 1982 dollars	402	387	417	273	262	53
Ford Motor						
- Sales in current dollars (b)(c)	1,246	979	1,496	1,222	1,280	1,097
- Sales in constant 1982 dollars	1,958	1,429	2,004	1,466	1,339	1,097
- Profit in current dollars	1,673	1,589	1,169	-1,543	-1,060	-658
- Profit in 1982 dollars	2,628	2,318	1,566	-1,851	-1,108	-658
International Harvester						
- Sales in current dollars (b)	...	2,348	3,069	2,507	2,980	1,864
- Sales in constant 1982 dollars	...	3,426	4,111	3,007	3,116	1,864
- Profit in current dollars	...	187	370	-397	-393	-1,638
- Profit in 1982 dollars	...	273	496	-476	-411	-1,638
Massey-Ferguson						
- Sales in current dollars	2,861	2,631	2,973	3,132	2,646	2,058
- Sales in constant 1982 dollars	4,495	3,838	3,982	3,757	2,767	2,058
- Profit in current dollars	32	-262	37	-225	-195	-413
- Profit in 1982 dollars	50	-382	50	-270	-204	-413
Total six companies						
- Sales in current dollars	7,585	11,221	13,827	13,705	14,069	10,510
- Sales in constant 1982 dollars	11,916	16,371	18,522	16,438	14,713	10,510
- Profit in current dollars	2,001	1,853	1,962	-1,933	-1,463	-2,659
- Profit in 1982 dollars	3,144	2,703	2,628	-2,319	-1,530	-2,659

Source: David M. Dornbusch and Co., San Francisco, U.S.A.
Note: Producer price index for agricultural machinery and equipment, code 11-1, as published by U.S. Department of Labor, Bureau of Labor Statistics.

(a) Sales and profits pertain only to the agricultural machinery segment of the company.
(b) Sales pertain only to agricultural machinery, profits are company-wide.
(c) Sales are estimated by multiplying unit tractor sales by $15,000 per tractor.

Table 28. U.S. agricultural machinery producers (SIC 352)
Shipments and employment
(US$ million and thousands of employees)

Category	1978	1979	1980	1981	1982	Jan 83	Feb 83
Farm tractors[a/]	2,264	2,902	2,761	3,066	2,339	145	...
Farm machinery ex tractors[b/]	5,479	6,711	6,651	6,896	...	...	...
Total farm machinery	7,743	9,613	9,412	9,962	...	...	...
Total sector shipments[c/]	11,197	13,258	13,699	14,769	11,816	907	789
Sector employment (thousands)[d/]	120.9	143.1	142.3	149.9	118.4	...	...
Total farm machinery (1982 US$)	11,297	12,877	11,289	10,418	2,339	...	...
Total sector shipments (1982 US$)	16,336	17,759	16,431	15,445	11,816	877	761

Source: David M. Dornbusch and Co., San Francisco, U.S.A.

a/ Wheeled tractors for agricultural use.
b/ Excludes lawn and garden equipment and commercial turf equipment.
c/ This row includes all goods and services produced by the farm machinery sector ISIC 352).
d/ Scaled to match sector shipment data in this table.

Table 29. US imports of agricultural machinery with detail on tractors by size (US$ million)

Product groups / years	1978	1979	1980	1981	1982
Tractors					
< 40 HP	128	205	146	155	129
40 HP to 100 HP	91	271	323	241	200
> 100 HP	40	52	65	56	57
used or HP non spec.	212	144	130	160	142
Total tractors	471	672	664	612	528
Other farm machinery	489	698	685	639	485
Total farm machinery (current US$)	960	1,370	1,349	1,251	1,013
Total farm machinery (1982 US$)	1,401	1,835	1,618	1,308	1,013

Source: David M. Dornbusch and Co., San Francisco, U.S.A.

Table 30. US exports of agricultural machinery with detail on tractors by size (US$ million)

Product groups / years	1978	1979	1980	1981	1982
Tractors					
< 40 HP	15	22	18	14	6
40 HP to 100 HP	87	69	59	79	45
> 100 HP	322	407	498	623	495
used or HP non spec.	119	158	160	184	93
Total tractors	543	656	735	900	639
Other farm machinery	844	1,088	1,295	1,420	1,127
Total farm machinery (current US$)	1,387	1,744	2,030	2,320	1,766
Total farm machinery (1982 US$)	2,024	2,336	2,435	2,426	1,766

Source: David M. Dornbusch and Co., San Francisco, U.S.A.

Table 31. US shipments of agricultural machinery except tractors by product groups
(US$ million)

Product groups / years		1978	1979	1980	1981
Planting, seeding and fertilizing machinery	Current $	522	653	681	770
	1982 $	762	875	817	805
Harrows, rollers, pulverizers and stalk cutters	Current $	462	601	555	524
	1982 $	674	805	666	548
Plows	Current $	204	273	246	234
	1982 $	298	366	295	245
Harvesting machinery	Current $	1,816	2,134	2,207	2,579
	1982 $	2,649	2,859	2,647	2,697
Haying machinery	Current $	534	675	778	715
	1982 $	779	904	933	748
Farm dairy machines and equipment	Current $	109	134	144	160
	1982 $	159	179	173	167
Sprayers and dusters	Current $	198	245	254	249
	1982 $	289	328	305	260
Farm elevators and blowers	Current $	157	173	141	118
	1982 $	229	232	169	123
Cultivators and weeders	Current $	206	276	276	240
	1982 $	301	370	331	251
Crop preparation machines	Current $	356	385	340	312
	1982 $	519	516	408	326
Farm poultry equipment	Current $	159	223	175	145
	1982 $	232	299	210	152
Hog equipment	Current $	95	121	64	42
	1982 $	139	162	77	44
Other barn & barnyard equipment	Current $	252	307	274	257
	1982	368	411	329	269
Farm wagons & other transportation	Current $	248	277	207	199
	1982 $	362	371	248	208
Irrigation systems	Current $	161	234	309	352
	1982 $	235	313	371	368
TOTAL FARM MACHINERY EXCEPT TRACTORS	Current $	5,479	6,711	6,651	6,896
	1982 $	7,994	8,989	7,978	7,211

Source: David M Dornbusch and Co., San Francisco, U.S.A.

Table 32. U.S. imports and exports of agricultural machinery except tractors
(US$ million)

Import Category		1978	1979	1980	1981	1982
Machinery for soil preparation and cultivation	Current $	97	125	132	129	89
	1982 $	142	167	158	135	89
Harvesting machinery	Current $	330	471	467	416	322
	1982 $	481	631	560	435	322
Dairy machinery and other	Current $	63	103	86	95	74
	1982 $	92	138	103	99	74
TOTAL AGRICULTURAL MACHINERY IMPORTS EXCEPT TRACTORS	Current $	490	699	685	640	485
	1982 $	715	936	822	669	485

Export Category		1978	1979	1980	1981	1982
Machinery for soil preparation and cultivation	Current $	210	262	262	299	218
	1982 $	306	351	314	313	218
Harvesting machinery	Current $	497	645	846	909	744
	1982 $	725	864	1,015	951	744
Dairy machinery and other	Current $	138	181	187	212	165
	1982 $	201	242	224	222	165
TOTAL AGRICULTURAL MACHINERY EXPORTS EXCEPT TRACTORS	Current $	845	1,088	1,295	1,420	1,127
	1982 $	1,233	1,457	1,553	1,485	1,127

Source: David M Dornbusch and Co., San Francisco, U.S.A.

Table 33. Sales of major O.E.C.D. manufacturers of agricultural machinery in 1981
(in million US$)

Company	Country of registration of the parent company	Sales (mill. US$)
John Deere	USA	4,665
International Harvester	USA	2,979
Massey-Ferguson (USA)	Canada	2,646
Massey-Ferguson (Canada)	Canada	1,587
Case	USA	1,798
Fiat	Italy	1,174
Ford	USA	1,280
New Holland (Agricultural machinery division of the Sperry Rand Corporation)	USA	1,087
Kubota	Japan	951
Allis-Chalmer	USA	700
K.H.D.	Germany, Fed. Rep.	505
Renault-DMA	France	314
Claas	Germany, Fed. Rep.	309

Source: Louis Berger, S.A.R.L., Paris, France.
a) estimate

Table 34. Employment in the agricultural machinery industry in selected Western European countries
(Numbers of persons employed)

	Machinery Industry			
Country / year	1979	1980	1981	1982
Germany, Fed. Rep.	60,863	57,690	55,738	54,487
France	38,759	35,994	35,562	34,700
U.K.	...	26,100	20,600	19,200
Italy	...	...	...	...
Netherlands	5,000	4,900	4,500	...
Finland	...	5,600	5,400	5,300
Switzerland	...	...	...	3,000
Belgium	...	7,654	7,182	6,404
Sweden	2,703	2,359	2,308	2,200

Source: Louis Berger, S.A.R.L., Paris, France.

Table 35. Production of tractors in the Federal Republic of Germany, 1981-82

(in numbers of units)

Manufacturers	(ranking in 1981)	1982		1981		1982/1981	
		Units	Market share %	Units	Market share %	Units change	% change
1. KHD	(2)	7,836	18.9	7,310	17.8	+ 526	+ 7.2
2. FENDT	(3)	7,813	18.9	7,182	17.5	+ 631	+ 8.8
3. IHC	(1)	7,018	17.0	8,130	19.8	- 1,112	- 13.7
4. J. DEERE	(4)	3,675	8.9	3,055	7.4	+ 620	+ 20.3
5. DAIMLER BENZ	(5)	2,639	6.4	2,781	6.8	- 142	- 5.1
6. MAS. FERGUSSON	(6)	2,743	6.2	2,743	6.7	- 174	- 6.3
7. FIAT	(7)	1,627	3.9	1,418	3.5	+ 209	+ 14.7
8. SAME	(10)	1,026	2.5	882	2.1	+ 144	+ 16.3
9. EICHER	(8)	1,013	2.4	1,327	3.2	- 314	- 23.7
10. RENAULT	(9)	885	2.1	971	2.4	- 86	- 8.9
11. HOLDER	(11)	488	1.2	522	1.3	- 34	- 6.5
12. SCHLOTER	(12)	488	1.1	492	1.2	- 44	- 8.9
13. STEYR	(13)	432	1.0	443	1.1	- 11	- 2.5
14. ZETOR	(15)	423	1.0	342	0.8	+ 81	+ 23.7
15. FORD	(14)	382	0.9	343	0.8	+ 39	+ 11.4
16. LAMBORGHINI	(16)	299	0.7	305	0.7	- 6	- 2.0
17. D. BROWN	(17)	152	0.4	219	0.5	- 67	- 30.6
18. UTB	(18)	60	0.2	97	0.2	- 37	- 38.1
Others		2,595	6.3	2,536	6.2	+ 59	+ 2.3
TOTAL		41,380	100.0	41,098	100.0	+ 282	+ 0.7

Source: Louis Berger, S.A.R.L., Paris, France.

Table 36. Agricultural machinery production in the Federal Republic of Germany, 1979 - 1981
(US$ million, constant 1975 prices)

Product group / year	1979	1980	1981
Machinery for soil cultivation	98.4	78.4	85.5
Planting, seeding and fertilizing machinery	93.4	71.4	72.1
Sprayers and dusters	41.2	32.4	32.9
Irrigation equipment	8.4	6.5	10.8
Harvesting machines	505.5	406.0	444.2
Crop preparation machines	12.4	9.2	8.6
Farm equipment	54.2	38.8	32.4
Other agricultural machinery	102.3	79.5	83.5
Accessories and parts	199.9	163.6	169.5
Handling equipment	62.6	48.6	42.0
Farm wagons	123.7	101.6	96.0
Accessories and parts for transportation and handling equipment	15.8	11.8	11.1
Farm dairy equipment	108.5	91.4	96.3
Total agricultural machinery	1,426.4	1,139.2	1,185.1
Cultivators	32.5	24.6	20.7
Tractors 34 HP	27.1	23.9	11.9
35 HP 50 HP	131.2	65.7	72.2
50 HP	202.9	711.2	724.9
Accessories and parts	236.1	169.8	177.3
Total tractors	1,329.7	995.1	1,007.0
Total production of all machinery	2,756.2	2,134.3	2,102.1

Source: Louis Berger, S.A.R.L., Paris, France.

Table 37. Agricultural machinery production in France, 1979 - 82
(in numbers of units)

Product / year	1979	1980	1981	1982 a/
Machines for soil cultivation	39,563	32,784	34,434	40,600
Planting, seeding, & fertilizing machinery	78,246	70,584	63,416	56,900
Sprayers and dusters	279,510	290,755	311,169	280,200
Harvesting machines	46,958	43,094	32,612	28,670
Other agricultural machinery	13,539	11,347	10,261	10,000
Vintage machines	291	520	847	1,380
Handling equipment	13,826	13,609	13,090	17,000
Farm wagons	17,771	21,449	18,865	17,000
Cultivators	110,673	84,526	74,590	77,900
Tractors: 34 HP	78	55	30	73
35 - 50 HP	8,714	7,104	5,504	4,206
50 HP	37,658	31,845	32,833	35,821

Source: Louis Berger, S.A.R.L., Paris, France.

a/ Estimate.

Table 38. Sales of agricultural machinery (excluding tractors) and number of enterprises in the U.K., 1979 - 1982
(US$ million, constant 1975 prices)

Product group / year	1979		1980	1981		1982	
	a	b	b	a	b	a	b
Soil preparation and cultivation machinery							
- ploughs		8,215	8,449	11	8,301	11	9,548
- cultivators and hoes	12	19,399	13,483	9	8,805		9,736
- disc harrows	11	4,134	4,100	6	3,199	5	3,518
- drills	14	10,381	10,011	10	5,955	7	9,531
- fertilizing and spreading machines		5,454	8,556	9	5,232		9,748
- plombers, rollers	12	7,313	5,019	7	3,873	7	1,546
- parts	24	29,809	29,287	15	19,483	13	22,208
Harvesting and threshing machinery							
- harvesters			15,750		9,949		6,106
- balers	6	31,127	24,208	5	16,217		8,860
- mowers		9,812	7,739		3,127		3,534
- feed processing silage making		14,181	11,199		7,942		4,944
- others			21,530	18	20,008	14	17,251
- parts	26	19,146	24,180	25	13,316	17	10,153
Farm dairy equipment		28,432	23,927		21,212		20,274
Miscellaneous agricultural machinery			21,657	21	16,224	14	13,013
Elevators and conveyors		11,500	8,308	14	6,563	12	5,242
Other handling equipment						26	24,590
Parts	54	40,383	41,621	33	2,246	35	20,618
Unclassified sales		4,661	4,752		2,652		3,528
Total		243,947	283,776		174,304		203,984

Source: Louis Berger, S.A.R.L., Paris, France.

a) Number of enterprises.
b) Sales in 000US$.

Table 39. Agricultural machinery production in the Netherlands 1978-1981
(US$ million, constant 1975 prices)

Produced groups/year	1978	1979	1980	1981
- Ploughs	2.37	1.65	1.28	1.37
- Harrows, cultivators, hoeing machines and weeding implements	16.77	13.09	13.34	15.15
- Other equipment for cultivation	3.91	2.46	1.64	1.65
- Fertilizer distributors and liquid manure spreaders	21.67	22.13	17.45	19.13
- Equipment for sowing and planting	0.51	0.66	0.44	0.48
- Spraying machines	10.27	6.15	5.14	6.16
- Haying machines	8.66	7.51	6.81	9.11
- Digger harvesters for potatoes and sugar beets	4.24	3.12	2.86	2.38
- Other machinery for threshing and harvesting; balers for straw and raw food	36.79	38.14	36.71	37.50
- Grading machines	24.99	21.00	17.70	20.34
- Other agricultural machines	45.27	55.92	40.47	40.52
- Parts and special equipment	36.14	37.11	28.35	27.44
- Agricultural trailers	8.55	8.21	6.17	...
Total agricultural machinery	220.14	217.18	178.37	181.02

Source: Louis Berger, S.A.R.L., Paris, France

Note: Figures are provisional

Table 40. Agricultural machinery and implements production in European centrally planned economies, 1970 and 1975-1980
(in units)

Tractors

Country / year	1970	1975	1976	1977	1978	1979	1980
Bulgaria	4,405	5,112	5,919	6,258	7,675	5,644	6,767
Czechoslovakia	18,480	29,585	31,458	35,040	33,317	35,370	33,359
Hungary	1,930	551	513	658	400	142	108
Poland	40,998	57,553	58,805	59,078	59,078	54,231	57,445
Romania	29,287	50,003	53,911	65,715	65,715	62,494	70,873
U.S.S.R.	458,525	550,432	562,175	575,113	576,113	557,415	554,916
Total	553,625	693,236	712,781	742,729	742,729	715,296	723,468

Ploughs (tractor-operated)

Country / year	1970	1975	1976	1977	1978	1979	1980
Bulgaria	3,871	3,221	3,624	711	1,166	1,650	2,145
Czechoslovakia	3,238	3,235	1,876	1,365	1,001	1,100	1,212
German Dem. Rep.	4,916	2,552	2,343	2,567	3,432	2,695	2,616
Hungary	2,096	3,073	4,616	2,583	1,590	707	301
Poland	28,099	41,434	38,180	33,349	33,052	34,653	3,0024
Romania	1,414	19,883	23,250	15,677	14,756	9,597	12,818
U.S.S.R.	211,657	205,391	202,321	184,940	216,117	210,851	202,246
Total	265,291	278,789	276,210	251,252	271,114	261,253	251,362

Seeders (tractor-operated)

Country / year	1970	1975	1976	1977	1978	1979	1980
Bulgaria	22,427	21,863	23,201	23,948	22,045	21,125	19,446
Czechoslovakia	5,173	4,955	5,090	5,325	3,547	2,492	4,178
German Dem. Rep.	3,320	3,140	2,902	2,556	2,262	2,334	3,022
Hungary	1,456	1,055	2,526	1,344	989	1,202	960
Poland	3,221	1,030	3,538	6,897	10,721	13,400	13,434
Romania	11,721	25,448	18,620	27,054	23,204	22,436	19,351
U.S.S.R.	163,453	180,015	191,051	196,891	198,781	202,008	201,181
Total	210,771	237,506	246,982	264,015	261,549	264,997	261,572

Note: Seeders and potato transplanters together.

Table 40 (cont'd)

Harvester-combines

Country / year	1970	1975	1976	1977	1978	1979	1980
Poland	2,155	3,591	3,956	4,003	4,301	4,268	4593
Romania	1,179	5,659	5,198	5,365	3,887	3,016	4890
U.S.S.R.	99,247	97,503	101,700	105,510	113,002	14,759	11,7365
Total	102,581	106,753	110,854	114,878	121,190	122,043	126,848

Ensilage combines

Country / year	1970	1975	1976	1977	1978	1979	1980
Bulgaria	20,330	30,000	28,482	31,968	33,770	35,978	35,503
Czechoslovakia	920	1,097	...	...	...	...	...
German Dem. Rep.	4,670	5,772	4,011	4,502	4,425	4,500	4,810
Hungary	1,004	1,073	520	204	-	-	-
Poland	6,000	1,501	-	-	-	610	1,663
Romania	-	45	...	...	...	...	...
U.S.S.R.	34,335	70,895	56,039	56,645	47,985	45,585	46,689
Total	67,259	110,383	89,052	93,319	86,180	86,673	88,665

Source: J. Jelenkowski, Warsaw, Poland.

Table 41. European centrally planned economies: Trade in agricultural machinery by country
(US$ million, constant 1975 prices)

Bulgaria

	1970	1975	1976	1977	1978	1979	1980
Tractors and related machinery							
Exports	138.1	198.0	171.7	177.9	138.0	174.3	181.4
Imports	83.4	191.0	180.9	194.3	167.1	154.3	162.0
Agricultural machinery and equipment							
Exports	119.5	165.8	129.2	147.2	142.9	143.2	153.9
Imports	32.2	121.9	104.4	107.6	96.8	108.1	90.9

Czechoslovakia

	1970	1975	1976	1977	1978	1979	1980
Tractors and related machinery							
Exports	113.0	201.0	277.5	281.7	279.7	272.0	255.7
Imports	187.1	322.0	360.0	369.0	282.0	234.3	226.2
Agricultural machinery and equipment							
Exports	35.6	85.2	113.3	111.9	129.5	122.1	117.1
Imports	120.3	236.7	246.7	235.9	186.5	165.5	152.8

Table 41 (cont'd)

Germany, Democratic Republic

	1970	1975	1976	1977	1978	1979	1980
Tractors and related machinery							
Exports	278.5	479.8	571.9	616.2	562.9	566.3	543.1
Imports	98.0	188.3	208.6	264.6	216.7	217.7	228.2
Agricultural machinery and equipment							
Exports	165.9	460.0	644.2	591.3	547.1	550.8	520.7
Imports	28.8	84.5	84.2	140.2	102.9	101.7	114.1

Hungary

	1970	1975	1976	1977	1978	1979	1980
Tractors and related machinery							
Exports	43.6	134.9	177.9	202.6	184.0	213.2	229.3
Imports	114.1	243.1	305.2	326.2	347.4	300.9	232.3
Agricultural machinery and equipment							
Exports	29.7	122.7	151.5	191.6	178.0	197.7	210.9
Imports	68.3	181.9	213.1	217.9	230.0	209.9	160.0

Table 41 (cont'd)

Poland

	1970	1975	1976	1977	1978	1979	1980
Tractors and related machinery							
Exports	67.8	193.2	216.2	208.2	202.2	187.7	175.2
Imports	130.7	307.5	387.9	412.2	408.0	365.3	334.2
Agricultural machinery and equipment							
Exports	44.1	114.8	135.8	132.2	134.4	125.4	129.4
Imports	54.6	188.4	174.8	190.2	163.4	195.4	164.9

USSR

	1970	1975	1976	1977	1978	1979	1980
Tractors and related machinery							
Exports	158.5	214.1	280.2	340.1	319.5	302.0	268.2

Total imports and exports of agricultural machinery and implements by the centrally planned economies of Eastern Europe, 1975-1980,[a/]
(US$ million, constant 1975 prices)

	1975	1976	1977	1978	1979	1980
Total						
Imports	2,065.3	2,265.7	2,458.1	2,200.7	2,053.2	1,865.7
Exports	2,155.4	2,589.3	2,660.7	2,498.7	2,552.7	2,609.8
Tractors						
Imports	1,251.9	1,442.6	1,566.3	1,421.2	1,272.5	1,183.0
Exports	1,206.9	1,415.2	1,486.6	1,366.8	1,413.5	1,477.8
Agricultural Machinery Other than tractors						
Imports	813.4	823.1	891.8	779.5	780.7	682.7
Exports	948.5	1174.1	1174.1	1131.9	1139.2	1132.0

a/ excluding USSR

Source: J. Jelenkowski, Warsaw, Poland.

Table 42. European centrally planned economies
Cultivated land per tractor, 1970, 1975 and 1977
(in hectares)

Country/Year	1970	1975	1977
Bulgaria	112	92	96
Czechoslovakia	52	49	50
Germany, Dem. Rep.	42	45	46
Hungary	100	109	113
Poland	85	47	40
Romania	140	125	108
USSR	276	235	225

Source: J. Jelenkowski, Warsaw, Poland.

Table 43. European centrally planned economies:
Crop area per complete harvester or harvester thresher, 1970, 1975 and 1977
(in hectares)

Country/Year	1970	1975	1977
Bulgaria	232	219	213
Czechoslovakia	160	137	141
Germany, Dem. Rep.	128	228	368
Hungary	254	215	204
Poland	562	344	277
Romania	130	164	144
USSR	183	180	181

Source: J. Jelenkowski, Warsaw, Poland.

Table 44. European centrally planned economies:
Production of tractors per 10,000 inhabitants, 1970 - 1978
(in numbers)

Country/Year	1970	1975	1977	1978
Bulgaria	4.1	5.6	7.1	8.7
Czechoslovakia	12.9	20.0	23.3	23.3
Hungary	1.9	0.5	0.6	0.4
Poland	12.6	16.9	17.0	17.0
Romania	14.5	23.5	27.4	30.1
USSR	18.2	20.8	21.1	21.2

Source: J. Jelenkowski, Warsaw, Poland.

Table 45. Specific agricultural machinery and equipment produced in centrally planned economies

Bulgaria

(in units)

Items	1970	1975	1976	1977	1978	1979	1980
Cultivators, tractor-drawn	3,204	2,810	1,560	1,286	354	116	120
Fertilizer distributors, tractor-drawn	2,223	2,531	2,636	2,590	1,940	1,094	313
Crushers (pre-cutters) of the feeding for animals	18,059	23,250	24,777	25,997	9,542	2,263	2,434
Water distributors	2,106	900	1,000	533	440	618	597

Czechoslovakia

(in units)

Items	1970	1975	1976	1977	1978	1979	1980
Beet harvesters, tractor-drawn	915	989	900	770	633	721	685
Cultivators	50	75	90	10	-	100	-
Potato planters	-	4,820	4,830	5,275	3,447	2,392	4,128
Seeders		135	260	50	100	100	50
Milking machines	2,055	1,340	1,322	1,439	1,587	1,734	1,942
Pesticides distributors	1,023	200	1,050				

Table 45 (cont'd)

German Democratic Republic

(in units)

Items	1970	1975	1976	1977	1978
Potato harvesters	3,222	5,327	5,000	3,845	2,230
Hay and straw-press	5,743	11,630	9,352	10,200	9,743

Hungary

(in units)

Items	1970	1975	1979	1980
Disc tillers	3,309	3,649	1,620	1,025
Machine pulled and suspended tractor cultivators	700	4,488	9,115	12,307
Harrows	5,737	9,884	10,417	6,550
Mechanized irrigators and pulverizers	1,984	4,046	3,362	3,043
Seed-dressing machines	2,484	1,064	2,050	1,384
Self-propelled chaff-cutter machines	1,004	1,073	-	2
Mechanized shellers	1,862	3	504	-
Mechanized crushing mills	887	29,006	39,568	37,629

Tractors	1970	1975	1980	1981
Production	1,930	551	108	224
Imports	4,855	6,373	4,460	3,120

Table 45 (cont'd)

Poland

(in 000 units)

Items	1970	1975	1978	1980	1981
Ploughs[a/], animal-drawn	50.2	40.4	9.1	15.8	19.1
Cultivators					
tractor-drawn	6.8	15.7	14.2	11.3	12.6
animal-drawn	8.5	5.0	1.4	-	-
Seeders[a/], animal-drawn	29.0	42.0	6.0	7.0	11.2
Mowers					
tractor-drawn	8.0	14.0	9.8	11.0	14.6
animal-drawn	50.7	41.9	18.3	16.1	10.8
Harvesters	7.2	6.0	6.4	6.8	9.7
Threshing machines	9.7	14.1	11.5	12.1	11.4
Complete harvesters	2.2	3.6	4.3	4.6	4.3
Potato-harvesters					
tractor-drawn	11.6	17.9	11.7	18.8	16.9
animal-drawn	48.0	20.0	7.3	7.5	11.6

Romania

(in units)

Items	1970	1975	1976	1977	1978	1979	1980
Cultivators							
tractor-drawn	2,992	800	3,509	4,033	2,603	3,738	3,073

a/ Ploughs, tractor-drawn see Table 40.
Seeders, tractor-drawn see Table 40.

Table 45 (cont'd)

U.S.S.R.

Production data in physical units. (in 000 units)

Items	1970	1975	1976	1977	1978	1979	1980
Paring ploughs, tractor-drawn	38.3	32.6	30.5	33.3	31.8	25.4	27.0
Disc-harrows, tractor-drawn	22.8	32.1	32.1	33.3	29.6	31.9	35.6
Potato-planters, tractor-drawn	18.0	9.1	10.5	11.0	11.5	13.1	13.4
Cultivators, tractor-drawn	219.0	188.0	180.0	187.0	193.0	204.0	218.0
Pesticide distributors	31.2	33.1	37.1	37.4	41.7	45.6	45.9
Harvesters	47.7	92.1	93.6	92.7	95.9	98.1	99.7
Complete harvesters	99.2	97.5	102	106	113	117	106
Potato harvesters	7.0	9.4	9.9	9.9	9.9	10.0	10.3
Beet harvesters	9.1	17.1	14.4	14.6	14.9	9.5	9.3
Corn harvesters	5.1	10.3	11.2	11.3	10.0	0.7	1.2
Drenchers	5.9	7.6	8.0	8.7	8.8	9.1	9.6
Mowers, tractor-drawn	12.3	27.1	28.4	27.5	26.0	18.0	17.1
Rakes, tractor-drawn	144.0	83.9	89.4	97.2	109	86.2	84.2
Pick-up presses	61.7	46.1	42.5	46.7	48.3	53.1	48.9
Ensilage harvesters	15.8	28.1	30.2	28.7	28.7	31.0	32.0
Multi-purpose loaders	34.4	70.9	56.0	56.7	48.0	46.7	40.8
Crushers (pre-cutters) of the feeding for animals	78.2	90.1	94.7	96.2	93.2	95.5	95.8
Self-acting equipment for watering of animals	14.2	33.2	35.1	36.6	32.2	27.1	26.7
Milking machines	5,305.0	5,169.0	4,960.0	4,869.0	4,880.0	5,233.0	4,943.0
	39.2	53.3	53.1	54.9	53.4	56.7	62.6

Source: J. Jelenkowski, Warsaw, Poland.

Table 46. Production of agricultural machinery and implements in Latin America, various years
(in units)

Items	1962	1967	1970	1976	1980	1982[a/]
1. Tractors[b/] of which	18,567	19,475	28,787	100,951	78,128	50,663
- Argentina	10,981	9,664	10,642	24,098	3,658	3,889
- Brazil	7,586	6,219	14,029	65,279	57,975	32,246
- Mexico		3,592	4,116	11,574	16,496	14,528
2. Agricultural machinery and implements other than tractors[c/]	137,960	212,812	469,328	354,612	217,025	198,000

Sources: 1962-1980 Yearbook of Industrial Statistics-Commodity Production Data, New York, various issues.

a/ 1982: figures for tractors from national sources, for other machinery UNIDO estimates.

b/ Tractors of 10 HP and over, other than industrial and road tractors.

c/ Cultivators, scarifiers, weeders, hoes, etc., harrows, ploughs, seeders, planters and transplanters, combine harvester-threshers, mowers (animal, tractor operated and self propelled), rakes and threshing machines.

Table 47. Latin America: Production of agricultural tractors of more than 10 horsepowers, 1970-1982
(in units)

Year	Totals	Argentina	Brazil	Mexico
1970	28,267	10,642	14,029	4,116
1971	41,895	13,268	23,548	5,079
1972	52,075	14,408	31,438	6,229
1973	68,803	21,460	41,513	5,830
1974	81,119	24,505	49,075	7,539
1975	86,540	18,397	58,061	10,082
1976	100,951	24,098	65,279	11,574
1977	89,816	25,631	53,696	10,489
1978	68,476	5,997	49,474	13,005
1979	82,819a/	10,901	56,418	15,500a/
1980	78,128	3,658	57,975	16,795
1981	62,832	1,378	42,474	18,980
1982	50,663	3,889	32,246	14,528b/

Source: Years 1970-1979: United Nations Yearbook of Industrial Statistics, Vol. II, 1978. Years 1980-1982: Argentina, Ministerio de Economía, Información Económica de la Argentina, No. 126, January-February 1983. Brazil: ANFAVEA, Planejamento Económico o Estadístico, April 1983. Mexico: Secretaría de Programación y Presupuesto, Estadística Industrial Mensual.

a/ Estimates.

b/ From January-October.

Table 48. Latin American imports and exports of agricultural machinery and implements
Share of the region in world trade 1971 and 1975-1981 (US $mill., constant 1975 prices)

SITC Rev. I	Description	1971	1975	1976	1977	1978	1979	1980	1981
7121/2/5/9	Agricultural Machinery and Implements - Total								
	- Imports (US $mill)	444.8	916.2	654.4	690.1	646.8	682.4	871.6	650.1
	Share in world imports (%)	10.2	10.9	7.8	8.9	8.5	8.2	10.2	10.5
	- Exports (US $mill)	14.8	82.0	55.1	94.4	113.5	130.0	145.6	146.4
	Share in world exports (%)	0.4	1.0	0.6	1.2	1.5	1.5	1.8	2.4
7121	Cultivating Machinery								
	- Imports (US $mill)	26.9	51.0	41.6	35.6	39.6	47.3	57.0	48.1
	Share in world imports (%)	8.4	7.2	6.2	5.3	6.0	6.4	7.6	7.1
	- Exports (US $mill)	2.4	11.9	9.0	11.8	9.6	11.7	13.9	10.1
	Share in world exports (%)	0.8	1.7	1.4	1.8	1.5	1.6	1.6	1.5
7122	Harvesting Machinery								
	- Imports (US $mill)	94.8	231.1	125.4	132.2	116.6	116.8	214.1	176.8
	Share in world imports (%)	7.7	8.4	5.1	6.3	5.3	4.8	7.3	9.6
	- Exports (US $mill)	5.6	19.9	18.1	16.3	14.6	12.0	14.4	17.4
	Share in world exports (%)	0.4	0.7	0.7	0.8	0.7	0.5	0.5	1.0
7125	Tractors non-road								
	- Imports (US $mill)	302.6	603.4	442.2	484.7	455.6	467.5	536.4	396.9
	Share in world imports (%)	13.2	13.7	9.9	10.9	9.7	10.9	11.6	11.9
	- Exports (US $mill)	6.1	48.4	26.0	63.5	84.4	104.0	114.6	116.8
	Share in world exports (%)	0.3	1.1	0.3	1.4	1.8	2.4	2.5	3.5
7129	Agricultural Machinery and Appliances NES								
	- Imports (US $mill)	20.5	30.7	45.2	37.6	35.0	55.8	64.1	28.3
	Share in world imports (%)	7.0	8.3	6.7	8.6	7.4	7.7	9.5	7.8
	- Exports (US $mill)	0.7	1.8	2.0	2.8	4.9	2.3	2.7	2.1
	Share in world exports (%)	0.3	0.5	0.5	0.7	1.2	0.5	0.4	0.6

Source: UNSO Trade Tapes

Table 49. ECWA Region: Tractors in use, 1965 - 1980
(in units)

Year / Country	Bahrain	Iran	Iraq	Jordan	Kuwait	Lebanon
1965	-		6,500	3,608	-	1,900
1966	-	16,000	7,700	2,168	-	2,080
1967	-	17,500	8,922	2,808	-	2,176
1968	-	20,000	9,500	3,044	-	2,250
1969	-	21,000	10,400	3,127	-	2,350
1970	-	20,000	10,800	2,758	-	2,500
1971	-	21,500	11,300	2,856	-	2,700
1972	-	23,000	12,000	2,950	-	2,850
1973	-	25,000	18,000	3,200	9	3,000
1974	-	27,000	19,000	3,547	18	3,000
1975	-	29,000	20,222	3,748	14	3,000
1976	-	45,000	21,000	3,914	20	3,000
1977	-	50,000	21,500	4,074	25	3,000
1978	-	55,000	21,800	4,223	30	3,000
1979	-	57,000	22,000	4,370	,32	3,000
1980	-	58,000	22,200	4,520	35	3,000

Year / Country	Oman	Qatar	Saudi Arabia	Syrian Arab Rep.	United Arab Emirates	Yemen Arab Rep.	Yemen Dem. Rep.
1965	-	-	400	7,675	-		660
1966	-	-	313	7,424	-		820
1967	-	-	374	7,204	-		880
1968	-	-	396	8,115	-		-
1969	-	-	451	8,756	-		-
1970	-	-	700	9,031	-		1,050
1971	-	-	750	9,606	-		1,100
1972	-	-	800	10,374	-		1,150
1973	-	-	850	11,574	-	674	1,150
1974	-	-	770	12,864	-	750	1,180
1975	-	-	800	15,303	-	850	1,190
1976	75	-	830	18,567	-	1,500	1,200
1977	84	-	900	20,672	-	1,600	1,200
1978	100	-	1,000	23,329	-	1,800	1,250
1979	92	-	1,100	25,340	-	1,900	1,260
1980	93	-	1,200	27,544	-	2,000	1,260

Source: FAO Production Yearbook, various issues, FAO, Rome.

Table 50. Syria: Agricultural machinery used in cultivation

(in units)

Year	Tractors	Harvesters		Combined Harvester + Threshers		Fixed Threshers	Seeders	Disc Harrow + Pulvizers	Dusters		Sprayers		a) Ploughs
		by animals	tractors	self-powered	by tractors				by motor	by hand	by motor	by hand	
1971	9,606	-	52	1,368	65	531	1,929	1,117	7,455	14,967	1,010	2,099	96,247
1972	10,374	2	49	1,294	86	657	1,660	1,105	6,788	12,095	899	1,787	120,855
1973	11,574	23	77	1,587	122	814	1,656	1,557	7,587	11,815	831	2,761	131,995
1974	12,864	3	92	1,657	87	1,103	1,702	1,782	17,316	12,738	846	2,832	144,100
1975	15,303	-	60	1,607	57	1,367	1,903	2,012	8,706	12,614	1,325	3,031	133,996
1976	18,567	5	59	2,088	58	1,448	2,020	2,486	9,406	13,632	1,337	2,866	137,197
1977	20,672	23	48	2,254	105	1,512	2,087	2,687	11,735	15,085	1,153	3,222	134,611
1978	23,329	4	51	2,106	83	1,966	2,343	3,405	11,681	15,966	824	3,587	132,030
1979	25,340	10	82	2,206	123	2,064	3,137	3,139	12,863	16,545	784	3,717	133,526
1980	27,544	28	85	2,244	114	2,301	3,483	3,628	14,806	19,053	1,081	3,788	134,950

Source: The Annual Agricultural Statistical Abstract 1980, Syria.

a) The modern ploughs represent about 26% of total.

Table 51. Developing Africa's imports of agricultural machinery, 1973 -1979
(US$ thousands, constant 1975 prices)

Year	Group	Handtools[a/]	Tractors[b/]	Others[c/]	Total
1973	All developing Africa	19,413	192,016	104,800	316,385
	of which:				
	Sub-Saharan countries	15,120	125,201	48,880	190,201
	LDCs	4,692	34,607	19,146	58,445
1974	All developing Africa	23,007	261,167	118,074	402,247
	of which:				
	Sub-Saharan countries	18,747	148,723	58,053	225,523
	LDCs	5,969	41,992	22,049	70,010
1975	All developing Africa	28,934	366,026	166,723	561,583
	of which:				
	Sub-Saharan countries	25,644	224,632	83,983	334,259
	LDCs	10,113	50,354	32,026	92,493
1976	All developing Africa	27,185	332,392	128,073	487,950
	of which:				
	Sub-Saharan countries	24,269	224,065	70,271	318,605
	LDCs	8,589	39,505	25,049	73,142
1977	All developing Africa	29,989	381,020	144,257	555,175
	of which:				
	Sub-Saharan countries	24,924	255,856	92,387	373,167
	LDCs	8,689	43,201	25,897	77,786
1978	All developing Africa	31,789	384,832	160,611	587,228
	of which:				
	Sub-Saharan countries	27,891	203,741	101,981	333,613
	LDCs	11,151	34,650	31,084	76,874
1979	All developing Africa	22,170	202,401	133,533	358,006
	of which:				
	Sub-Saharan countries	17,580	118,166	69,966	205,620
	LDCs	5,632	41,459	30,539	77,630

Source: UNSO Trade Tapes.

a/ SITC 695.1. Rev.1
b/ SITC 712.5. Rev.1
c/ SITC 712 less 7,2,5. Rev.1.

Table 52. Developing Africa's imports of agricultural machinery[a/] by subregions, 1973 to 1979
(US$ thousands, constant 1975 prices)

Year	World trade[b/]	Developing Africa's imports: Total thousands of dollars	Developing Africa's imports: As share of world trade[b/] (%)	Sub-Saharan African imports as share of African imports: Total	Sub-Saharan African imports as share of African imports: (%)	Africa LDC's imports as share of African imports: Total	Africa LDC's imports as share of African imports: (%)
1973	5.870,130	296,874	5.1	175,081	37.2	53,753	11.4
1974	6.893,708	379,240	5.5	206,776	32.9	64,041	10.2
1975	7.979,778	523,749	6.7	308,615	34.4	82,380	9.2
1976	7.626,415	460,466	6.0	294,336	44.7	64,553	9.8
1977	7.635,850	525,277	6.9	348,243	50.1	69,097	9.9
1978	7.319,312	555,443	7.6	305,722	42.5	65,723	9.1
1979	8.193,012	335,934	4.1	188,031	41.9	71,998	16.0

Source: United Nations Statistical Office; Yearbook of International Trade Statistics, various editions, United Nations, New York.

a/ SITC 712. Rev.1.

b/ Trade in agricultural machinery between market economy countries.

Table 53. Africa's sources of imported agricultural machinery, [a/] 1979
(000 US $, 1979 prices)

Importers / Exporters									
Subregion/ country	Western Europe [b/]	United States and Canada	Other developed countries	CMEA [c/]	Developing countries [d/]	Africa developing countries	South Africa	Other	World
North Africa	200 595	14 195	5 361	11 833	2 603	352	-	1 230	236 172
of which:									
Algeria	32 772	3 247	1 485	3 340	763	283	-	-	41 891
Egypt	10 144	1 441	360	6 948	163	-	-	10	19 069
Sudan	14 028	5 689	37	285	1 654	18	-	-	21 713
West Africa	56 337	24 632	10 763	240	3 963	705	-	1 087	97 731
of which:									
Ivory Coast	14 647	10 939	2 623	-	569	63	-	1 087	29 931
Mali	2 663	188	17	-	-	16	-	1 087	2 885
Nigeria	19 009	6 263	2 900	-	982	2	-	-	29 158
Senegal	2 781	750	34	-	51	-	-	-	3 618
Togo	1 357	166	4	-	-	5	-	-	1 534
Central Africa	18 757	17 304	632	104	91	931	-	329	38 150
of which:									
Burundi	465	239	-	-	-	1	-	-	706
United Republic of Cameroon	11 789	9 316	348	93	91	597	-	329	22 566
Zaire	3 456	778	140	-	-	2	-	-	4 377
East and Southern Africa	74 047	19 019	10 366	5 744	3 195	893	1 780	-	115 040
of which:									
Ethiopia	7 868	382	1 885	5 658	102	-	-	-	15 897
Kenya	15 340	1 540	2 686	-	688	-	-	-	20 257
Madagascar	6 049	2 517	590	85	62	105	-	-	9 411
United Republic of Tanzania	12 684	2 537	2 767	-	689	11	-	-	18 690
Zambia	6 531	760	132	-	-	468	-	-	7 892
Total Sub-Saharan Africa	163 170	66 645	21 800	6 374	8 905	2 549	1 780	1 417	272 645
All developing Africa	349 737	75 151	27 124	17 922	9 855	2 882	1 780	2 647	487 104
Africa LDCs	66 174	18 623	6 535	6 184	3 974	1 182	1 720	-	104 397
Total Africa	442 634	122 484	38 138	17 922	22 004	2 882	1 780	2 647	650 496
Total World	6 343 628	3 567 153	765 984	930 990	228 679	4 522	10 708	28 200	11 879 868

Source: UNSO Trade Tapes.

a/ Data excludes handtools, i.e. SITC 712 only.
b/ EEC plus EFTA countries.
c/ European CMEA countries only.
d/ Excluding Africa.

Table 54. Africa's tractors imports [a/] 1976-79
(in numbers and thousands US$ at 1975 constant prices)

	1976		1977		1978		1979	
	Number	Value US$	Number	Value US$	Number	Value US$	Number	Value US$
Algeria	450	4,776	2,565	19,297	5,400	36,678	1,300	8,581
Angola	830	7,143	840	6,897	850	549	770	5,517
Benin	60	667	75	647	60	564	60	524
Botswana	...	...	170	1,466	170	1,371	185	1,401
Burundi	15	83	33	172	175	844	75	330
Cameroun	1,300	12,697	1,800	16,566	2,000	16,856	2,050	16,552
Cape Verde	2	19	1	9	6	65	3	34
Cent.Afr.Rep.	6	63	12	110	12	102	90	757
Chad	45	476	47	474	47	436	46	414
Congo	65	876	110	1,377	85	977	90	966
Egypt	1,849	11,604	3,498	26,935	6,000	40,967	2,850	12,352
Ethiopia	380	3,696	534	4,750	210	1,032	670	4,419
Gabon	500	7,315	500	6,446	535	6,165	350	3,772
Gambia	26	145	45	289	46	263	47	262
Ghana	890	11,886	1,000	12,714	760	8,271	1,000	10,345
Guinea Bissau	30	279	15	105	15	113	16	117
Ivory Coast	7,209	35,051	1,683	47,118	1,150	17,157	630	8,881
Kenya	1,341	11,440	2,801	24,165	2,830	26,374	885	9,683
Lesotho	100	1,007	130	1,121	120	955	122	931
Liberia	90	2,503	169	2,791	140	1,522	168	1,724
Libya	2,291	15,917	2,737	18,560	5,643	34,916	4,700	27,586
Madagascar	186	2,151	135	1,415	329	2,477	285	2,069
Malawi	432	3,182	248	1,297	380	3,261	580	4,793
Mali	20	184	195	1,693	220	1,654	190	1,379
Mauritania	100	472	363	1,561	280	1,128	320	1,284
Mauritius	145	2,366	132	1,352	165	1,504	182	1,586
Morocco	2,317	18,139	3,163	19,591	2,543	15,480	2,524	14,739
Mozambique	111	669	150	862	215	1,128	240	1,241
Niger	1,000	4,175	780	3,017	800	3,008	760	2,897
Nigeria	4,397	74,316	4,431	71,372	4,200	60,157	4,250	57,241
Reunion	150	1,434	145	1,260	140	1,102	150	1,124
Rwanda	19	181	19	172	20	168	27	217
Sao Tomè	6	29	6	28	6	26	6	26
Senegal	290	3,333	380	6,943	236	5,114	180	3,241
Seychelles	...	...	10	33	10	27	7	23
Sierra Leone	219	335	50	195	85	451	105	552
Somalia	155	1,457	590	5,114	290	2,295	320	2,414
South Africa	15,585	113,812	13,567	94,741	13,966	94,344	8,012	71,468
Sudan	2,813	15,394	985	3,151	1,033	4,112	1,150	4,828
Swaziland	70	696	100	862	140	1,054	220	1,595
Tanzania	491	4,305	383	3,453	560	4,887	700	5,517
Togo	480	4,883	355	3,314	450	3,759	480	3,793
Tunisia	2,453	15,215	1,895	12,234	1,781	11,205	1,437	9,488
Uganda	635	3,903	650	3,707	642	3,383	530	2,759
Upper Volta	130	1,905	143	3,083	150	2,256	200	2,787
Zaire	568	7,100	281	4,184	330	4,511	375	4,828
Zambia	811	3,833	692	3,803	860	4,398	900	4,483
Zimbabwe	...		702	5,172	543	3,637	741	4,925
Total Africa [a/]	51,062	411,094	49,315	445,613	56,628	438,538	40,978	326,446
Total World	763,414	3,963,720	833,754	4,031,760	824,544	3,926,165	850,846	3,935,861
of which:								
Africa [b/] [c/]	28,524	254,367	28,528	302,226	29,986	264,189	24,266	210,212
Latin America	41,443	470,394	45,297	461,997	50,862	471,907	51,973	388,583
Near East [b/] [c/]	61,655	407,848	58,546	342,924	50,322	271,756	24,781	138,330
Far East [b/] [c/]	36,765	197,158	37,810	214,296	43,708	210,044	39,902	194,981

Source: FAO Trade Yearbook, 34, 1980; FAO, Rome.

a/ Total imports including intra-Africa trade.

b/ Market economy developing countries only.

c/ Excluding intra-regional trade.

STATISTICAL COMPENDIUM

Section C

Selected data relevant to the agricultural machinery industry of the developing countries

SECTION C

Selected Data of the Developing Countries

Year: 1980

Country	Total land area Km²	Total population 1000	Agricultural population in % of total populat.	Total arable land area 1000 HA	Specific land area per person HA	Specific arable land area per person HA	National income per capita US $ a/	Average size of holding HA	Total No. of tractors	Arable area per tractor HA	Arable land/agricultural labor force	Level of agricultural mechanization	Agricultural machinery industry
Afghanistan	647,500	16,347	77	8,050	4.0	0.49	92	N.A.	790	10,190	1.9	Manual and animal drawn implements farming	Some hand tools and animal-drawn implements and pumps
Algeria	2.381,740	19.590	49	7.509	12.2	0.38	1,081	6.1 <5 69%	43,693	172	3.6	Holding within the self-managing are quite mechanized	Tractors and other implements all manufactured locally
Angola	1.246,700	7,262	57	3,500	17.2	0.48	381	N.A.	10,300	340	3.3	N.A.	N.A.
Argentina	2.766,890	27,369	13	35,200	10.1	1.29	2.622	<5 82%	166,700	211	26.3	0.3HP/HA. Most of land is well mechanized with tractor and combines	Tractors are produced - 10,000 unit per year. 180 factories manufacture all implements
Bahamas	13,940	248	N.A.	16	5.6	0.06	2,500	N.A.	72	222	N.A.	N.A.	N.A.
Bangladesh	144,000	90,693	84	9,145	0.2	0.10	142	0.62 <4 98%	4,100	2,230	0.36	Mainly animale drawn implements farming except irrigation and rice procession use machine	All tractors implements and animal-drawn implements are locally made

a/ Figures refer to 1979

b/ The data on average size of holding are the most recent available, generally from 1970 - 1977.

Table (Cont'd)

Country	Total land area Km2	Total population 1000	Agricultural population in % of total populat.	Total arable land area 1000 HA	Specific land area per person HA	Specific arable land area per person HA	National income per capita US $ a/	Average size of holding HA	Total No. of tractors	Arable area per tractor HA	Arable land/agricultural labor force	Level of agricultural mechanization	Agricultural machinery industry
Benin	112 620	3,640	46	1,795	3.1	0.49	157	N.A.	105	17.095	2.4	Mainly hand tools farming	Not existing
Bhutan	47.000	1.325	93	93	3.6	0.07	70 b/	N.A.	N.A.	N.A.	0.2	Traditional farming	Not existing
Botswana	600.370	832	79	1,360	72.2	1,63	819	4.5 <4 66%	2.150	633	4.5	Drawn animals are mainly used	Nearly all implements are imported
Burundi	27,830	4.348	83	1,305	0.64	0.30	122	N.A.	50	26,100	0.8	Manual and animal drawn implements farming	Some of hand tools can be made
Bolivia	1,098,580	5.720	49	3.250	19.2	0.57	504	<5 59%	750	4,333	3.6	Agriculture has traditionally been produced	Not existing
Brazil	8.511 970	125.220	37	61,950	6.8	0.49	1,347	5.8 <5 63%	330,000	188	1.6	0.3HP/HA. Most of land is well mechanized with tractor and combines	Most of agricultura machines including tractors - 5,000 unit/year are manufactured
Burma	676,550	36.166	51	9,573	1.9	0.26	110	4.1 <4 59%	9,273	1,032	1.3	Farms use hand-tools and animal-drawn implements. Sugar cane farmers use tractor for cultivation	Nearly all of the tractors and implements are locally made

b/ 1977

Table (Cont'd)

Country	Total land area Km^2	Total population 1000	Agricultural population in % of total populat	Total arable land area 1000 HA	Specific land area per person HA	Specific arable land area per person HA	National income per capita US $ a/	Average size of holding HA	Total No. of tractors	Arable area per tractor HA	Arable land/agricultural labor force	Level of agricultural mechanization	Agricultural machinery industry
Cameroon	475,440	8,650	80	6.930	5.5	0.80	461	<4 94%	500	13,860	2.2	N.A.	Hand tools can be made
Central Africa	622,980	2,349	87	1,945	26,5	0.83	190	<5 97%	155	12,548	1.8	Mainly hand tools animal-drawn implements are not popularized	Not existing
Chad	1,284,000	4,547	83	3. 5,150	28,2	0.69	129	<5 89%	160	19,687	2.2	Mainly hand tools animal-drawn implements are beginning to be used	Not existing
China	9.596.960	1,007,750	59	99,200	1.0	0.10	380 b/	1.0	740,000	134	0.4	Some state farms are highly mechanized. Most communes use power machinery for cultivating, but animal-drawn implements still existed. Power machine cultivated area 42% (in 1979)	There are a lot of factories which make all kinds of agricultural machinery. They produced tractors: 126,000 units and walking tractors: 316,000 units in 1979

b/ 1977

Table (Cont'd)

Country	Total land area Km^2	Total population 1000	Agricultural population in % of total populat.	Total arable land area 1000 HA	Specific land area per person HA	Specific arable land area per person HA	National income per capita US $ a/	Average size of holding HA	Total No. of tractors	Arable area per tractor HA	Arable land/agricultural labor force	Level of agricultural mechanization	Agricultural machinery industry
Chile	756,950	11,294	18	5,530	6.7	0.49	1,397	7.1 <5 66%	34,600	160	8.2	Small or medium sized tractors are most commonly used	Hand-tools and animal implements can be produced
Colombia	1.138,910	26,355	27	5,650	4.3	0.21	633	<5 51%	28,423	199	2.7	60-70% land is well mechanized with tractors and combines 0.3HP/HA	Category I, II are manufactured. Tractors are not manufactured due to market limit
Comoros	2,170	369	63	91	0.59	0.85	202	N.A.	N.A.	N.A.	1.1	N.A.	N.A.
Congo	342.000	1,578	33	669	21.7	0.42	538	1.4 <2 84%	670	999	3.7	Hand-tools are used	Hand-tools are produced
Costa Rica	50.700	2.266	34	490	2.2	0.22	1.080	<5 49%	5,950	82	1.9	Plantation are mechanized. Small farms use hand tools and animal-drawn implement	Mainly produce hand tools
Cuba	114.520	9,791	25	3,200	1.2	0.33	800 b/	<5 86%	68.300	47	4.6	N.A.	N.A.
Cyprus	9.250	623	34	432	1.5	0.69	1,971	N.A.	10.800	40	4.7	N.A.	N.A.
Dominican Republic	48.730	6,095	57	1,230	0.8	0.20	775	<5 77%	3.150	390	1.4	N.A.	N.A.

b/ 1977

Table (Cont'd)

Country	Total land area Km²	Total population 1000	Agricultural population in % of total populat.	Total arable land area 1000 HA	Specific land area per person HA	Specific arable land area per person HA	National income per capita US $ a/	Average size of holding HA	Total No. of tractors	Arable area per tractor HA	Arable land/agricultural labor force	Level of agricultural mechanization	Agricultural machinery industry
East Timor	14.930	772	58	80	1.9	0.10	130 b/	N.A.	114	702	0.6	N.A.	N.A.
Ecuador	283.560	8,275	44	2,620	3,4	0.32	702	11 <5 74%	5,750	456	2.3	Most farmers use manual and animal drawn implements	All machines are imported except hand tools which are locally made
Egypt	1.001.450	43,101	50	2,855	2.3	0.07	493	0.9 <2.1 94%	25,000	114	0.5	30% of work is mechanized, small farms use animal drawn implements	Tractors assembling 20,000 unit/year. Other implements are manufactured
El Salvador	21,040	4,938	50	725	0.43	0.15	365	<5 86%	3,300	220	1.0	High power input for large scale cotton and sugar cane farms. Hand labour and animal drawn implements for small farms	Not existing
Equatorial Guinea	28,050	372	74	230	7.5	0.62	109	N.A.	98	2.347	2.9	N.A.	N.A.

b/ 1977

Table (Cont'd)

Country	Total land area Km2	Total population 1000	Agricultural population in % of total populat.	Total arable land area 1000 HA	Specific land area per person HA	Specific arable land area per person HA	National income per capita US $ a/	Average size of holding HA	Total No. of tractors	Arable area per tractor HA	Arable land/agricultural labor force	Level of agricultural mechanization	Agricultural machinery industry
Ethiopia	1.221.900	32.158	79	13,880	3.8	0.43	108	1.5	3.950	3.514	1.4	Except state farm (2% area) using machinery, all farms use animal-drawn implement for cultivation and manual harvesting	90% hand tools and some animal-drawn implements can be produced
Fiji	18.270	641	39	148	2.9	0.23	1.314	7.3 4.4 55%	1.560	95	1.8	Most farmers use manual and animal-drawn implements, only 5,000 farms of sugar cane own tractors	Not existing
Gabon	267,670	555	76	452	48.2	0.81	4,037	N.A.	1,250	362	2.3	Hand tools are mainly used	Not existing
Gambia	11.300	619	78	270	1.8	0.44	423	N.A.	75	3.600	1.2	Mainly hand tools some use animal-drawn implements	Hand tools made locally
Ghana	238,540	12.063	50	2.760	2.0	0.23	356	3.2 <4. 86%	3,500	789	1.3	Mainly hand-tools and animal-drawn implements are used but mechanized land preparation is widespread	Two firms are assembling (FMD) tractors. One firm produces hand-tools and animal-drawn implements

Table (Cont'd)

Country	Total land area Km2	Total population 1000	Agricultural population in % of total populat.	Total arable land area 1000 HA	Specific land area per person HA	Specific arable land area per person HA	National income per capita US $ a/	Average size of holding HA	Total No. of tractors	Arable area per tractor HA	Arable land/agricultural labor force	Level of agricultural mechanization	Agricultural machinery industry
Guatemala	108.890	7,481	54	1.834	1.5	0.25	658	<4 78%	4,000	459	1.5	Plantations are mechanized; small farms use hand tools and animal-drawn implements	Mainly produced hand tools
Guinea	245.860	5 147	80	1.570	4.8	0.31	262	N.A.	140	11.214	2.9	Most farms use hand tools and animal-drawn implements are not popularized	Firms producing hand tools are existing
Guinea Bissau	36.120	583	82	285	6.2	0.49	191	<5 87%	25	11.400	2.0	N.A.	N.A.
Guyana	214.970	903	21	380	23.8	0.42	498	N.A.	3,460	110	6.1	Rice cultivation is highly mechanized. Hand-tools are used for other	Not existing
Haiti	27.750	5 954	66	890	0.47	0.15	147	<4 95%	520	1,712	0.5	Mainly hand tools and animal implement are used	Hand tools are locally made
Honduras	111.209	3.822	62	1.757	2.9	0.46	385	<4 60%	3.250	541	2.6	Plantations are mechanized; small farms use hand tools and animal-drawn implements	Mainly produced hand tools

Table (Cont'd)

Country	Total land area Km2	Total population 1000	Agricultural population in % of total populat.	Total arable land area 1000 HA	Specific land area per person HA	Specific arable land area per person HA	National income per capita US $ a/	Average size of holding HA	Total No. of tractors	Arable area per tractor HA	Arable land/agricultural labor force	Level of agricultural mechanization	Agricultural machinery industry
India	3,287,590	697,974	62	169,130	0.47	0.24	154	2.6 <2 62%	418,116	405	1.0	Most medium farms use power machinery for cultivating. Small farms (<3Ha) are still using animal-drawn implements. Total draft power is 0.36 HP/HA of cultivated land	There are 3000 factories making all kinds of agricultural machinery and implements, of which 11 tractor firms manufactured 60,000 units in 1979
Indonesia	1,904,350	150,520	58	19,500	1.3	0.13	267	1.14 <5 98%	13,000	1,500	0.7	The mechanization has been low level, the farms still use hand tool and animal-drawn implements	Some hundred tractors are assembled and other implements are manufactured
Iran	1,648,000	39,320	38	15,950	4.2	0.41	952	7 <5 35%	58,000	275	3.9	Most of the area are mechanized	Local assembly of tractors, power tiller and implements
Iraq	434,920	13.527	40	5.450	3.2	0.40	1,462	9.6 <5 41%	22,200	246	4.2	Most of the area are mechanized	Local assembly of tractors (2 firms 20,000 units/year) and manufacture of agricultural implements

Table (Cont'd)

Country	Total land area Km^2	Total population 1000	Agricultural population in % of total populat.	Total arable land area 1000 HA	Specific land area per person HA	Specific arable land area per person HA	National income per capita US $ a/	Average size of holding HA	Total No. of tractors	Arable area per tractor HA	Arable land/agricultural labor force	Level of agricultural mechanization	Agricultural machinery industry
Ivory Coast	322.460	8.298	79	3,880	3.9	0.47	663	<5 64%	3,100	1,252	1.2	N.A.	Not existing
Jamaica	10.990	2,220	20	265	0.5	0.12	1,028	<4 89%	2,800	95	1.7	N.A.	N.A.
Jordan	97,740	3.364	25	1.380	2.9	0.41	625	7 <5 64%	4,520	305	6.9	Machinery farming 32%, manual and animal-drawn implements for others	Small workshop made threshers, trailers disc harrows and deep-well components
Kampuchea DM	181.040	6 828	74	3,046	2.7	0.45	90 b/	N.A.	1.350	2,256	1.6	Hand tools and animal-drawn implements are used	Hand tools can be made
Kenya	582,650	17,148	77	2,275	3.4	0.13	250	3.4 <4 83%	6 750	377	0.5	Large farms and plantations are well mechanized. Most farms use animal-drawn implements	8 factories are making animal-drawn implements and implements for tractors
Korea, DPR	120,540	18.317	45	2,240	0.7	0.12	450 b/	N.A.	30,000	75	0.6	Most farms use tractors	A few firms manufacture small farm machinery, most implements and tractors are manufactured

b/ 1977

Table (Cont'd)

Country	Total land area Km²	Total population 1000	Agricultural population in % of total populat.	Total arable land area 1000 HA	Specific land area per person HA	Specific arable land area per person HA	National income per capita US $ a/	Average size of holding HA	Total No. of tractors	Arable area per tractor HA	Arable land/agricultural labor force	Level of agricultural mechanization	Agricultural machinery industry
Korea	98.480	39,110	37	2,196	0.3	0.06	761	0.87 <3 99%	2,664	824	0.4	Mainly power tillers (122,079 units in 1976) for farming. Total machine power is 0.9 HP per HA	Local manufacture of tractors with some imported parts. All other machines are completely locally made
Kuwai	17.820	1,426	2	1	1.3	0.001	12,563	N.A.	35	29	0.2	N.A.	N.A.
Lao	236.800	3.811	73	880	6.2	0.23	85 b/	N.A.	464	1.897	0.7	Hand tools and animal-drawn implements are used	Hand tools can be made
Leban	10.400	2.685	9	348	0.39	0.13	779 c/	N.A.	3,000	116	5.1	Mainly power machinery farming. Hand tools and animal-drawn implements are used	Animal-drawn implements and hand tools are locally made
Lesot	30.350	1.374	83	292	2.2	0.21	321	2 <4 91%	640	456	0.5	Mainly animal-drawn implements. Only 15% land area cultivated by machinery	Not existing
Liber	111.370	2 038	69	371	5.5	0.18	428	N.A.	300	1.237	0.7	N.A.	Hand tools can be produced

Table (Cont'd)

Country	Total land area Km2	Total population 1000	Agricultural population in % of total populat.	Total arable land area 1000 HA	Specific land area per person HA	Specific arable land area per person HA	National income per capita US $ a/	Average size of holding HA	Total No. of tractors	Arable area per tractor HA	Arable land/agricultural labor force	Level of agricultural mechanization	Agricultural machinery industry
Libya	1,759 540	3,098	15	2,080	56,8	0.67	5,799	26 <5 33%	14,000	149	17.8	Agriculture is coming close to being completely mechanized	A joint venture company is to assemble and later part manufacture the tractors
Madag r	587.040	8,982	83	3,000	6.5	0.33	231	N.A.	2,650	1.132	0.8	Few state farm with machinery farming most farms use animal-drawn implements	Some of hand tool and animal-drawn implements can be produced
Mala	118 480	6,369	83	2,320	1.9	0.36	140	1.5	1,200	1.933	0.7	Most farms use hand tools; some farms use animal-drawn implements	Hand tools and some animal-drawn implements can be made locally
Mala a	329 750	14.415	47	4,310	2.3	0.30	1,004	2.0 <4 90%	8.050	535	1.9	Tree crops make up 82% of agricultural land it is mechanized. In the rice growing area 60 to 90% of farms are mechanized	A few firms manufacture small-farm machinery and tractor assembly
Mal	1,240.000	7.136	86	2.050	17.4	0.29	83	4.4 <4 63%	700	2.929	0.6	Manual and animal drawn implements farming	Hand tools and some animal-drawn implements can be made

Table (Cont'd)

	Total land area Km^2	Total population 1000	Agricultural population in % of total populat.	Total arable land area 1000 HA	Specific land area per person HA	Specific arable land area per person HA	National income per capita US $ a/	Average size of holding HA	Total No. of tractors	Arable area per tractor HA	Arable land/agricultural labor force	Level of agricultural mechanization	Agricultural machinery industry
Kau enia	1.030,700	1.681	82	195	61.3	0.12	277	N.A.	290	672	0.5	N.A.	N.A.
Mau ius	1,860	976	28	107	0.2	0.11	861	N. A.	325	329	1.1	Agriculture (main crop sugar cane) is highly mechanized. Hand tools are used for other	Part of hand tools are locally made
Mex	1.972.550	71.814	35	23,330	2,8	0.32	1,458	<5 51%	120.000	194	3.2	Except 30% small farms all land is well mechanized with tractors	Most agricultural machines are manufactured. Tractor production 10,000 units per year
Mor ia	1.565 000	1.716	48	1,182	91.2	0.69	750 b/	N.A.	9.700	122	3.9	N.A.	N.A.
Mo: o	446,550	20,971	51	7,719	2.1	0.37	561	5.8 <5 66%	24.500	315	2.8	Mainly manual and animal-drawn implement farming. Machinery 11%	Some hand tools and animal-drawn implements can be produced. For tractor 50% assembly and 50% imported
Mo ique	801.590	10.757	63	3,080	7.5	0.29	294	<5 97%	5,750	536	1.2	N.A.	N.A.
Ke	140,800	14,617	92	2,330	1.0	0.16	121	1.3 <3 83%	520	4,481	0.4	Manual and animal drawn implements farming	A factory produces implements and tools

Table (Con'd)

	Total land area Km²	Total population 1000	Agricultural population in % of total populat.	Total arable land area 1000 HA	Specific land area per person HA	Specific arable land area per person HA	National income per capita US $ a/	Average size of holding HA	Total No. of tractors	Arable area per tractor HA	Arable land/agricultural labor force	Level of agricultural mechanization	Agricultural machinery industry
...agua	130.000	2,824	42	1,516	4.6	0.54	494	3.5 32%	2,200	689	4.4	Plantations are mechanized; small farms use hand tools and animal-drawn implement	Mainly produce hand tools
	1 267.000	5,479	87	3,350	23.1	0.61	208	6 <5 56%	180	18.611	2.3	Mainly manual farming	Not existing
...ia	923.770	79,680	52	30,385	1.16	0.38	685	<4 90% without state farms	8,600	3,533	2.0	N.A.	Animal implements are manufactured. tractors are assembled locally
	212 460	919	61	41	23.1	0.04	2,400 b	N.A.	93	N.A.	0.3	N.A.	N.A.
...a	77 080	1,970	34	574	3.9	0.29	1.202	<4 48%	4,000	144	2.6	N.A.	N.A.
...stan	803 940	89,416	53	20,320	0.9	0.23	231	5.2 <5 68%	46.000	442	1.6	Large and medium size farms own tractors (60% of farms)	Tractor assembly, other machines and implements are produced
...ua New ...nea	461 690	3,241	82	366	14.2	0.11	505	N.A.	1,350	271	0.3	Mainly hand tools farming	Not existing

b/ 1977. later data not available

Table (Cont'd)

Country	Total land area Km^2	Total population 1000	Agricultural population in % of total populat.	Total arable land area 1000 HA	Specific land area per person HA	Specific arable land area per person HA	National income per capita US $ a/	Average size of holding HA	Total No. of tractors	Arable area per tractor HA	Arable land/agricultural labor force	Level of agricultural mechanization	Agricultural machinery industry
Paraguay	406,750	3.269	49	1,920	12,4	0.59	808	<5 46%	3,200	600	3.9	N.A.	Hand tools can be produced
Peru	1.285.220	18,119	37	3.400	7.1	0.19	907	<4 72%	13,900	245	1.8	Large farms mechanized; small farms use animal-drawn implements	No tractor manufacturing. Animal-drawn implements are produced
Philippines	300,000	50.525	45	9,920	0.59	0.20	419	3.6 <5 85%	17.000	584	1.3	Animals are widely employed on farms	1,200 tractors/year are assembled. Some firms produce animal-drawn and other implements. Total 60 firms
Qatar	11.000	248	N.A.	2	4.4	0.01	9,000 b/	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
Rwanda	26 340	4,950	89	975	0.53	0.20	150	N.A.	84	11,607	0.4	Mainly manual farming	Some of hand tools can be made
Samoa	2,860	158	N.A.	122	1.8	0.77	320	N.A.	30	4,067	N.A.	N.A.	N.A.
Sao Tome	960	86	N.A.	36	1.1	0.42	450	N.A.	123	293	N.A.	N.A.	N.A.

b/ 1977

Country	Total land area Km²	Total population 1000	Agricultural population in % of total populat.	Total arable land area 1000 HA	Specific land area per person HA	Specific arable land area per person HA	National income per capita US $ a/	Average size of holding HA	Total No. of tractors	Arable area per tractor HA	Arable land/agricultural labor force	Level of agricultural mechanization	Agricultural machinery industry
udi Arabia	2.149 690	9.319	60	1,105	23.1	0.12	6.657	6.7 <5 77%	1.200	921	0.8	Most of small holding (50%) use traditional tools and implements. The Government farm machinery hire service provides farm equipments	No manufacture of agricultural machines and implements
negal	196 190	5.811	74	5,225	3.4	0.90	302	<4 70%	460	1.359	3.0	Mainly hand tool and animal drawn implements	Animal drawn implements are manufactured under licence
ierra Leone	71.740	3.571	64	1,766	2.0	0.49	212	<4 90%	317	5.571	2.1	Hand tools and animal drawn implements	Not existing
ingapore	580	2.420	2	8	0.024	0.003	3,502	N.A.	44	182	0.4	N.A.	Tractors are assembly locally

Table (Cont'd)

Country	Total land area Km^2	Total population 1000	Agricultural population in % of total populat.	Total arable land area 1000 HA	Specific land area per person HA	Specific arable land area per person HA	National income per capita US $ a/	Average size of holding HA	Total No. of tractors	Arable area per tractor HA	Arable land/agricultural labor force	Level of agricultural mechanization	Agricultural machinery industry
Solomon Is.	28.450	237	N.A.	52	12.0	0.22	300 b/	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
Somalia	637.660	4 895	80	1,066	13.0	0.22	157	<5 97%	1.650	646	0.8	Some commercial farms are mechanized, small farms are traditional	Some of hand tools can be made
Sri Lanka	65.610	15.109	53	2.147	0,43	0.14	353	1.6 <4 95%	24,263	88	0.8	Most farms use animal-drawn implements. Only large farms use tractors	Animal drawn implements and tractor implements are made locally
Surinam	163 270	397	17	52	41.1	0.13	1.592	<5 74%	1.400	37	3.1	N.A.	N.A.
Sudan	2.505.810	18.901	76	12,417	13.3	0.66	379	4.1 60%	11.000	1,129	2.8	Some project are power mechanized. Seed bed preparation and wheat harvesting is mainly mechanized	Tractors are assembled (PKD). (630 units in 1975). Other implements are also made locally
Swaziland	17 360	574	72	204	3.02	0.36	932	3 <5 .8%	2.650	77	1.1	Mainly animal-drawn implements are used.	Small scale production of small tractors
Syria	185 180	9.331	47	5 684	1.98	0.61	869	N.A.	27.544	206	5.2	Half of cultivated area is mechanized	Tractors are assembled locally. (25-35 units per day)

Table (Cont'd)

Country	Total land area Km^2	Total population 1000	Agricultural population in % of total populat.	Total arable land area 1000 HA	Specific land area per person HA	Specific arable land area per person HA	National income per capita US $ a/	Average size of holding HA	Total No. of tractors	Arable area per tractor HA	Arable land/agricultural labor force	Level of agricultural mechanization	Agricultural machinery industry
Tanzania	945.090	18.510	80	5 160	5.1	0.28	186	N.A.	18,600	277	0.9	90% of small farms use hand-tools and animal-drawn implement	Hand-tool are locally made
Thailand	514.000	48.125	75	17,970	1.1	0.37	438	5.2 <5 60%	37.000	486	1.1	Sugar cane plants use power machinery, most small farmers use animal-drawn implements	Local assembly of tractors with mostly locally made components(3,000 units per year) other implements are produced
Togo	56 790	2,705	67	1,420	2.1	0.52	229	<5 94%	200	7,100	1.9	N.A.	Hand tools can be made locally
Trinidad and Tobago	5,130	1.185	16	158	0.4	0.13	2,944	5.9 <5 46%	2,350	67	2.2	N.A.	N.A.
Tunisia	163.610	6 513	40	4,700	2.5	0.72	952	N.A.	34,000	138	7.6	N.A.	Tractors are assembled locally. A factory produced implements and tools
Turkey	780.580	46 375	53	28,479	1.7	0.61	1.052	5.5 <5 73%	435.281	65	2.8	Except 15% of small farms all land is well mechanized with tractors	Most agricultural machines are manufactured. Tractor produced 40,000 units per year

Table (Cont'd)

Country	Total land area Km^2	Total population 1000	Agricultural population in % of total populat.	Total arable land area 1000 HA	Specific land area per person HA	Specific arable land area per person HA	National income per capita US $ a/	Average size of holding HA	Total No. of tractors	Arable area per tractor HA	Arable land/agricultural labor force	Level of agricultural mechanization	Agricultural machinery industry
U.A. Emirates	83 600	762	N.A.	13	11.0	0.017	11.000 b/	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
Uganda	236.040	13,620	80	5 680	1.7	0.42	230	<4 72%	2,180	2,606	1.3	Manual and animal-drawn implement farming	Hand-tools and some animal-drawn implement can be produced
Upper Volta	274.200	7.094	81	2,563	3.9	0.36	90	N.A.	68	37.691	0.9	N.A.	N.A.
Uruguay	176 220	2.945	12	1.910	6.0	0.65	1.519	N.A.	28.200	68	14.3	N.A.	Hand-tools and animal drawn implement can be made
Venezuela	912.050	16.156	17	3.755	5,7	0.23	2,027	<5 43%	38,000	99	4.4	N.A.	Tractors and other implement manufactury all locally
Vietnam	329,560	54,968	70	6,055	0.6	0.11	160	1.3 <5 95%	24,500	247	0.4	Mainly animal-drawn implements for farming	Animal-drawn implements and hand tools are manufactured
West Sahara	266.000	N.A.	N.A.	2	N.A.	N.A.	900	N.A.	11	182	N.A.	N.A.	N.A.
Yemen Arab R	195.000	5,940	75	2.790	3.3	0.47	230	N.A.	2 000	1,395	2.3	Manual and animal drawn implements farming	Some hand tools and implements can be produced

Table (Cont'd)

Country	Total land area Km^2	Total population 1000	Agricultural population in % of total populat	Total arable land area 1000 HA	Specific land area per person HA	Specific arable land area per person HA	National income per capita US $ a/	Average size of holding HA	Total No. of tractors	Arable area per tractor HA	Arable land/agricultural labor force	Level of agricultural mechanization	Agricultural machinery industry
Yemen Demo.	332 970	1.906	58	207	17.5	0.11	200 b/	N.A.	1,260	164	0.7	Mainly manual and animal-drawn implements farming	Hand tools can be produced
Zaire	2.345.410	29 104	74	6,314	8.1	0.22	94	2.3 (1.5 64%	1.900	3,323	0.7	Hand-tools and animal-drawn implements mainly used. State farms are mechanized	There are firms to assemble tractors and manufacture hand tools
Zambia	752,610	5 961	66	5 108	12.6	0.96	434	3.7 90%	4,600	1.110	3.7	70% crop-land use hand method, 10% crop land use tractors	Just started manufacturing hand-tools and animal-drawn implements
Zimbabwe	390 580	7.656	58	2 521	3 1	0.33	395	N.A.	20,200	125	1.8	N.A.	N.A.

Source: 1) 1981 FAO Production Yearbook Vol. 32
2) The world in figures (1976) - Editorial information compiled by the Economist and 1870 World Census of Agriculture. Analysis and Internal and Comparison of the results FAO
3) UNIDO data base

Note: The percentages hown in item "Average size of holding" represent the percentage of holdings with less than or more than indicated number of hectares of the total number of holdings.

For the guidance of our publications programme in order to assist in our publication activities, we would appreciate your completing the questionnaire below and returning it to UNIDO, Division for Industrial Studies, P.O. Box 300, A-1400 Vienna, Austria

---

Q U E S T I O N N A I R E

The Agricultural Machinery Industry: An appraisal of the current global situation production and market outlook, Statistical Compendium

		(please check appropriate box) yes	no
(1)	Were the data contained in the study useful?	☐	☐
(2)	Was the analysis sound?	☐	☐
(3)	Was the information provided new?	☐	☐
(4)	Did you agree with the conclusion?	☐	☐
(5)	Did you find the recommentations sound?	☐	☐
(6)	Were the format and style easy to read?	☐	☐
(7)	Do you wish to be put on our documents mailing list?	☐	☐
	If yes, please sepecify subjects of interest		
(8)	Do you wish to receive the latest list of documents prepared by the Division for Industrial Studies?	☐	☐

(9) Any other comments?

Name:
(in capitals) .....

Institution:
(please give full adress) .....

Date: .....